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Northern Indiana Normal School

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# THE STUDENT

## A Journal of Education.

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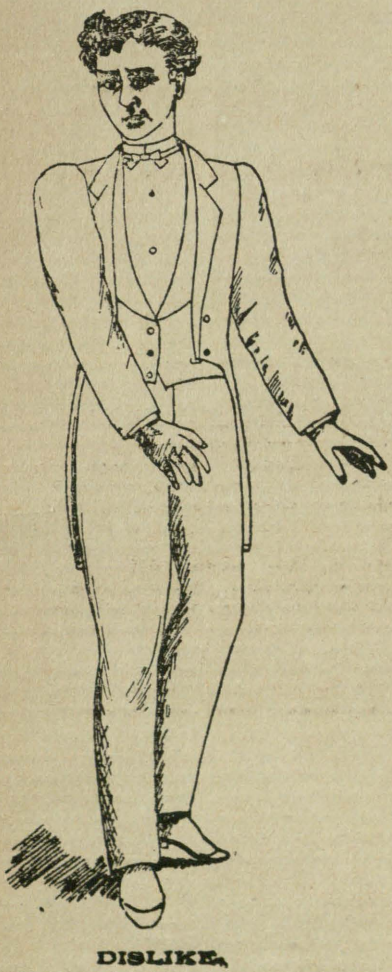

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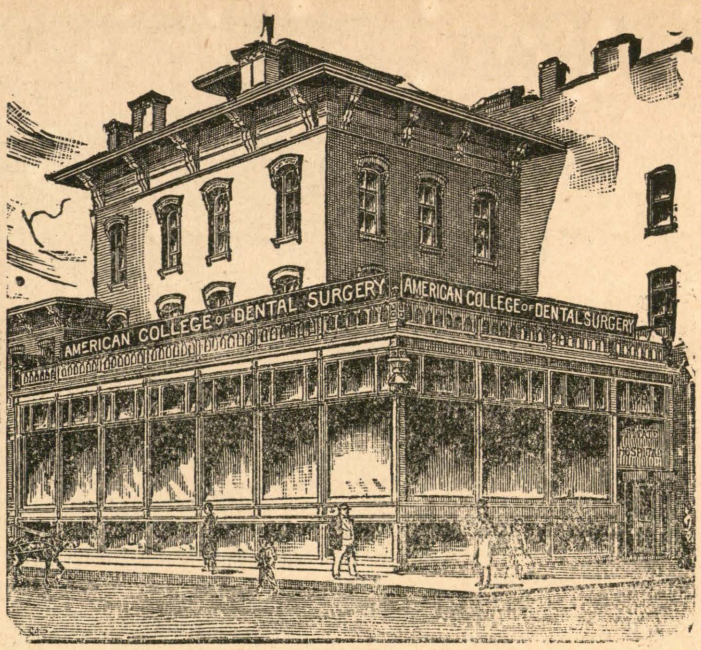


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# THE STUDENT.

VOL. III. JULY, 1893. NO. 7.

## CO-EDUCATION IN COLLEGES.

EX-PRES. J. L. PICKARD, IOWA CITY, IOWA.

TO the last half of the nineteenth century must be credited a decided advance in the estimate put upon woman as a student. In centuries past some woman in each has distinguished herself, and has won an imperishable place in history. In the fifteenth century—Joan of Arc; in the sixteenth—Queen Elizabeth; in the seventeenth—that queen in the realm of letter writing, Madame de Sevigny; Madame de Stael in history illuminated the eighteenth century; Harriet Martineau lent lustre to the first half of the nineteenth, while Caroline Herschel crossed the line between the eighteenth and nineteenth century with her brilliant record in astronomical researches and discoveries.

Each has shown herself the peer of the best man of her time, in courage, in statesmanship, in belles lettres and in science. Yet so deep-rooted had become the opinion of woman's inferiority that the fountains of knowledge have been sealed to her, and the possibility of her attaining equal rank with man in scholastic pursuits has met with tardy recognition.

The recognition which woman has won for herself has opened to her higher opportunities in the secondary schools established exclusively for her. Many "Female Seminaries" have blossomed into colleges with equipments equal to the best of those to which young men alone are invited.

Thirteen years ago an American young woman, but just graduated from a western university, was admitted, the first of her sex,

to lectures at the University of Leipsic. Others were not so fortunate at first but the exclusive spirit is weakening.

A half score years only have passed since Oxford with a thousand years of grand history behind her, was shaken as never before when a woman sought admission to her higher examinations (woman had been previously admitted to an inferior examination). The arguments (?) adduced against the innovation, would amuse if they did not sadden, the lovers of sound learning. The "convocation" by a decided majority wisely opened the doors of examination to women. It will serve as a temporary amusement if a few of the arguments so-called be repeated. "Matrimony is at the bottom of the whole business." "Tutors are incited by the thought of fees." "Young women will make some attempts to become manly and will end in making themselves inferior men." "Sound learning and the midnight lamp will be succeeded by light literature and the art of conversation at tea parties." "The virility of the university will be gone." "Hercules will again spin wool and Omphale don the lion's skin."

If a thousand years of training men has not developed a higher style of reasoning, Oxford has little virility to lose. Against such vapid theorizing Mrs. Fawcett writes of Newnham and of Girton at Cambridge—"Woman is not unsexed, but their graduates are among the most womanly of women, unselfish, loyal, courageous and devoted."

The question meets with fairer treatment on this side of the Atlantic, where no inferiority of woman is recognized. Candid men base their opposition to co-education upon woman's physical and moral nature and needs. Some indeed claim marked phychological characteristics as inseparable from sex.

Before proceeding to a discussion of the question it is proper that co-education be defined. The well-nigh universal practices of western colleges and universities will define the term with sufficient clearness.

Young men and young women are invited to pursue their studies together in the college as has been their custom in the high school and academy. They are subjected to an identical examination for admission. They are required to choose from many courses of study offered them. When choice is made they attend upon the

instruction of the professors at the same hour and of course in the same class-room. Requirements as to attendance, to preparation, to examinations are identical. They pass from year to year upon the same basis of scholarship. They have equal opportunities for winning scholarship honors. They graduate upon the same day, present their theses upon the same platform, and receive diplomas entitling them to enjoy the privileges of the same degrees.

The objections made to coeducation in colleges are entitled to respectful consideration.

*First.* Sex manifests itself in the intellect no less than in the bodily structure and functions. To ignore sex in educational processes is against nature and must result in disastrous failure. Let it be admitted. Is any psychologist wise enough to draw the line of demarkation, and to assign these studies as proper to the female mind and those to the male? When the attempt is made shall we not find many studies upon each side of the line? Will not similarities exceed differences? The opening of pursuits and professions to women within the last few years has brought into clearer light what is common to the sexes and differences are less prominent.

The modern coeducational colleges recognize the differences and provide varied courses of study. The influence of sex will determine the choice made. In some feminine minds there may be a masculine element which will affect the choice. The same may be true upon the other side. Will the friends of separate schools ignore nature and presume to correct what they claim to be abnormal?

The objection proceeds upon the theory that all courses of study are constructed with sole reference to the masculine mind. The days of the "trivium" and the "quadrivium" are long past. Science, literature and art present more than seven roads to a degree. No two applicants need pursue the same road in all its windings. There is ample range for the demands of sex in education. But is it best that these demands be met in their entirety? Because there is sex in education, coeducation claims candid consideration. In the economy of nature each sex has its place, not in studied separation and exclusion, but in mutual strengthening and restraint. And in no direction is the influence of sex stronger

or more complementary than in that of mental culture. Female colleges of the higher grade recognize the fact in the sometime selection of male presidents and male professors. Male colleges do not as yet reciprocate. If it be true that formative forces are the better where strength and grace are combined, who will claim that these forces emanate solely from the teacher's rostrum? The daily mingling of students furnishes the opportunity for the exercise of subtle yet powerful influences in the formation of character. This leads to the consideration of a second objection.

*Second.* Womanly virtues are endangered by the greater familiarity which coeducation permits. President Porter expressed the thought when he said in advocating woman's education, that he wished it to be in "Womanly ways." The "womanly way" as I understand it, is in the line of sacred and refining influence upon our social life. This power, like all others, gains strength by constant exercise. How can it be cultivated when opportunity for its exercise is denied. Man, too, needs training in manly ways. But the manly way is that of refined strength. Does the seclusion of the boys' college bring grace to movement, polish to manners, purity to thought, refinement to strength? Many of us, who were shut out from real society during a college course can recall many scenes where awkwardness or boorishness has brought a blush of shame to the cheek when returned to real life in the presence of our sisters—an awkwardness by no means relieved in the presence of those, who for the same number of years had learned of man only through glimpses obtained in the occasional party or in the sensational novel, in neither of which does the true man appear. Sex in education? Yes! It is God's plan. He will give it all needed force. It requires no stimulus, such as separate schools emphasize. Its action must not be reflex. For this reason I would urge the fact of sex in education as an argument for coeducation. Where will one find more manly men and more womanly women than in a family of brothers *and* sisters under the guidance of a loving father *and* mother. "That our sons may be as plants grown up, in their youth, that our daughters may be as corner stones polished after the similitude of a palace."

The family is the unit of society. The home is designed to be the citadel of virtue. If God's purpose be attained it will only be

through the union of strength and grace in the makers of the home. Why take away from either sex the opportunity to form a thorough, a rational acquaintance during the years wherein such acquaintance is ripening into a life-companionship? As well attempt to teach astronomy in a windowless room, or botany in a paved city court, as to expect the starlight of pure love or the flowers of sincere affection to reach the hearts of those who touch each other's lives only in formal society, or who know nothing of each other's character except as gathered from occasional meetings when society demands studied restraints of the real-self.

Let each sex test the other's strength in the class-room and respect for real worth will take the place of sentimentalism. Acquaintance will be formed upon the higher plane.

Those experienced can tell of the happiness of a married life, the road to which lay through the class-room, society halls and contests for intellectual supremacy which a coeducational college afforded.

Observation in coeducational work for nearly fifty years since my graduation warrants me in declaring the well-nigh universal happiness of those who have formed their life-attachments during a period of study in coeducational institutions. Indeed, of married classmates or college mates I recall no instance of unhappy results. Not many years since the opponents of opening a boys' school to the girls of the same city, based their opposition upon the injury to the moral character of the girls by permitting them to occupy the same class-room with their brothers and the friends of their brothers. The natural inference must be that girls are too weak morally to withstand the temptations of male society, under the restraints of the best teachers both male and female. Such an argument is an insult to the girls or a stigma upon their brothers.

If I could so far forget my experiences, or so far shut out the light of observation as to entertain even the shadow of a suspicion that coeducation can in the least degree prove prejudicial to public morality or to womanly refinement, I would raise my voice loudly in favor of entire separation of the sexes in all our colleges. Says Ruskin—"The soul's armor is never well set to the heart unless a woman's hand has braced it, and it is only when she braces it

loosely that the honor of manhood fails."

There remains one argument having greater weight with many than either of those thus far considered.

*Third.* Woman's physical nature demands a difference in treatment as to hours of study; as to times of physical exercise and the character of such exercise; as to regularity and uniformity of tasks assigned. Undoubtedly true. But give to the plan of coeducation its legitimate development—place in professional chairs without distinction in salary representative men and women and these differences will be recognized and dangers will be averted.

After all the danger is more apparent than real. A woman will study as a man does and will control the circumstances attending her. A woman will pursue her studies in a woman's way. Attempted prescription will end in disastrous failure. No two men pursue exactly the same methods in attainment of knowledge, as stated near the beginning of this article. A wide opportunity for choice is given, and it is but reasonable to suppose that woman regards her physical nature in making her choice. She has also had due regard to her future.

Can it be proven that woman's health is not endangered under the processes of coeducation?

A few years since the following facts were obtained from President Fairchild of Oberlin, which was one of the earliest coeducational colleges in America. During a given period of years under review, he ascertained that of eighty-four female graduates seven had died, 8 1-3 per cent. For the same period of 368 male graduates thirty-four had died or 9 1-4 per cent. So much for those who have entered active life after graduation. What can be said of those in the active pursuit of study? A school of six hundred pupils ranging in age from fourteen to eighteen years—the majority girls—furnishes from its records the fact that absences caused by ill-health were for one year one per cent. less in case of female than of male pupils, though the distance traversed varied from one-half mile to seven miles each day.

In scholarship young women bear off their full share of honors. Herein says Dr. Edes in the *Boston Medical and Surgical Journal* of March 9, 1882, the danger threatens woman. "What we are to name that impelling force which drives on the girl to pursue her

studies with a tireless sort of energy it is not easy to say. It seems to be a compound of conscience, ambition and a desire to please in varying proportions with a peculiar feminine sort of obstinacy, which in a better cause and reasonably directed would demand admiration rather than pity. A boy of moderate ability even with some ambition to do well is apt soon to realize his true position and content himself with such moderate scholastic honors as are easily within his reach. . . In this he has an immense advantage over his sister, that he realizes at an early age that many avenues are opened to him toward success, and in only a few of these is high scholarship of any advantage whatever."

Admitting this to be true, it is an argument in favor of coeducation since it is reasonable to suppose that the excessive sensitiveness of the girl will be checked in contact with the indifference of her brother educated at her side. But Dr. Edes would not be quoted as attributing the evils he depicts to coeducation, for he says further on—"On looking over my case-books I have been surprised to find the same statements repeated again and again, namely, that the sufferer had taken the highest honors at some noted *Female College.*" All the cases he cites from his own practice have but few references to school life, but these few are to female seminaries. The same Journal of November 24, 1881, gives a table of valuable statistics prepared by Dr. Tuckerman, of Cleveland, O., for which the assistance rendered me by Dr. Lincoln, of Boston, is gratefully recognized. These statistics prove the futility of the argument under consideration.

For physical reasons it is certainly not good policy to cultivate in woman that "impelling force" which Dr. Edes finds so difficult to define, and which his case-book traces to "Female colleges." Nor is it well to encourage the indifference of the young man. If these tendencies are inherent in sex, might it not be best for both sexes that they be brought into mutual action and that excessive sensitiveness be checked somewhat in its contact with too great indifference?

Separate schools quite naturally emphasize the tendencies of sex.

The presence of girls in my own class at the preparatory school gave me an inspiration, which was gradually lessened in power

during my college course, when boys were my only class-mates—boys over whose minds indifference gained gradual power as their years of exclusion advanced.

If no good argument can be adduced against the policy of co-education in colleges, with either a psychological, physiological, or moral basis; and if it be agreed that under the present plan of organization young men and young women may be educated together as well as in the separate schools—then one strong plea may be made for coeducational colleges on the score of *economy*. Duplications of all essential equipments—libraries, laboratories, apparatus of a material nature—and of the sources of living inspiration within professional chairs can hardly be justified.—*Education.*

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## EVOLUTION OF MAN.

By William Durham. F. R. S. E.

THE consideration of the evolution of living forms in general as due to natural selection, acting through descent with modifications one from another, is naturally followed by the inquiry whether man himself is included in this arrangement, or whether he has an entirely different origin and history. Man occupies such a unique position, and his moral and intellectual nature separates him by such a wide gulf from the highest of the lower animals, that we may well hesitate before classing him among them.

In discussing the question, however, we may for the present put aside his higher attributes, as these have been considered by at least one naturalist of great eminence to owe their origin to some other agent than natural selection. We may look upon man only as an animal, and inquire if there is anything in his life-history or in his structure which indicates the same or a different origin from that of other animals. In the first place, it may be stated that we have no direct positive evidence whatever that man as an animal has ever been anything different from what he is now; there is no trace of that gradual modification from one form to another, such as has been found so conspicuously in the case of the horse. The oldest human remains which have been preserved for ages in the

crust of the earth indicate no essential change in structure; they are not different from the remains of modern men; so that, as Professor Huxley says, "the fossil remains of man hitherto discovered do not seem to take us appreciably nearer to that lower pithecoid form by the modification of which he has probably become what he is." Of course, there is abundant evidence of mental development from the savage, making his stone implement, up to the modern civilized man, but none of change of bodily structure. It may be that as the various regions of the earth are more thoroughly explored his ancestry may be discovered, but at present geology is silent on the subject. Any conclusion, therefore, which may be come to as to his origin and position in the scale of life is based upon the analogy of his bodily form and functions to those of other animals. It is evident, even to the most superficial observer, that man is an animal differing considerably in outward appearance, but in the main the same as others, and on more careful study this becomes more and more evident. His form is constructed, as it were, on the same plan as other vertebrate animals. His backbone consists of a number of jointed vertebræ or small bones, and supports the head; he has a certain number of ribs enclosing and protecting his vital organs. He has four limbs, terminating in fingers and toes. His blood, muscles, nerves, heart with its veins and arteries, his lungs and breathing apparatus, generally correspond to those of other mammalia. In fact, every detail in structure is the same, differing somewhat, no doubt, but only in the same manner as one species differs from another. If we had no *a priori* ideas to get over, we should undoubtedly class him as one with them, although more highly organized, as there appears no essential difference marking him out as something quite different. Further, many animals have rudiments of organs which are useless to them, while these same organs are fully developed in some allied form, and are, therefore, supposed to indicate a common origin for both forms. Thus, for instance, many birds have only rudimentary wings, and the horse, as we have noticed, has the rudiments of two of its lost toes. In man the same phenomenon occurs; thus, he has the rudimentary bones of a tail beneath the skin, and there have been cases where a real external tail has appeared. The different parts of man's structure also vary, and often tend to

approximate to those of the lower animals. Thus, one authority states that in a single male subject there were no fewer than seven muscular variations, all of which plainly represented muscles proper to various kinds of apes. Of all the bodily organs, however, the brain has been considered the one by which man is most distinguished from the lower animals, and yet even in it the relationship is clearly traced. We see a regular gradation in this organ from the fish upwards, and there is no sudden break anywhere; it gradually increases in size and complexity through the various classes of animals until it culminates in man. The nearest approach to man's brain is found in those of the apes, which are also most nearly related to him in bodily structure. Every stage of the convolutions in the brain is found among the ape tribe, from the almost smooth brain of the marmoset up to that of the chimpanzee, which differs but little from that of man. As Mr. Huxley says:—"The surface of the brain of a monkey exhibits a sort of skeleton map of man's, and in the man-like apes the details become more and more filled in, until it is only in minor characters that the chimpanzee's or the orang's brain can be structurally distinguished from man's." Even as to size, although man's brain exceeds very largely that of any of the lower animals, yet we find there is a greater difference in weight between the largest and the smallest human brain than there is between the smallest human brain and the largest ape brain. If, therefore, we were to judge by size and weight of brain, we should consider there was a greater difference between the highest and the lowest man than there is between the lowest man and the highest ape. Again, if we compare the skeletons of some of the higher apes, we find they resemble in a most remarkable degree the skeleton of man, every bone corresponding, although differing somewhat in size, proportions, or position. In fact, like the general appearance of the animal, it is a sort of distorted copy of man. Professor Owen says in regard to this subject:—"I cannot shut my eyes to the significance of that all-pervading similitude of structure—every tooth, every bone, strictly homologous—which makes the determination of the difference between Homo and Pithecus the anatomist's difficulty." In the actual differences which are found, man sometimes agrees with one species, although he differs from another; so that it has been said

that the structural differences which separate man from the gorilla are not so great as those which separate the gorilla from the lower apes. It must not be supposed, however, that these analogies point to the ape as man's ancestor. This is a common mistake. They only indicate that if evolution be true, the apes and man had a common origin; and if we could trace their forms back through the ages, they would become more and more alike, until they merged into one form in their common ancestor, which would in all probability be greatly different from either. * * * * * * * * * * It is quite true that no remains of man's progenitors have been found connecting him in the far-distant past with the lower animals; but this is not to be wondered at when we consider that the place of his origin was in all probability the vast upland plains of Asia, which have never yet been explored by the geologist. There is no doubt such an idea of man's origin is so contrary to all our preconceived notions that we have great difficulty in receiving it, but the probability, at any rate, of its truth is very great indeed. It may be that hitherto we have judged the work of creation by our own standard. When we wish to form any object, we simply take a piece of wood or other material and carve it out at once to the required form; and we imagine the Creator has pursued the same method, and in this we may be mistaken, and are only now beginning to find out how much grander a method He has adopted. The savage, whose only plan of forming a boat is to cut down a tree, hollow it out and chip it into shape, might think we followed the same device, and be greatly astonished when told that we first laid the keel, then built the ribs, and afterwards nailed on the planks and fastened down the deck. * * * To all who hold that the theory of man's evolution is degrading, we would commend the words addressed to the Apostle Peter when his Jewish prejudices were outraged by the command to slay and eat unclean animals—"What God hath cleansed, that call thou not common," or unclean.

## TWO VALUES OF THE SILVER DOLLAR.

THE following letter of inquiry comes to us from a reader in Lincolnville, Kan.:

Your answer to a letter from Arkansas in the January number encourages me to ask a question in the hope of having it accorded similar courteous and instructive treatment. And it is with no hostile critical object that I ask it, for I am inclined to think your position on the money subject the right one. It is this: Why, if a sixty-six-cent dollar will buy only sixty-six cents' worth of goods, can we go into any store in the land, and, laying down five silver dollars, as readily get five dollars' worth of goods as if we had offered a five-dollar gold piece?

The reason why this can be done is because the country is on the gold standard, and the credit of the United States Government is behind every silver dollar. Our inquiring friend in Lincolnville can take his five silver dollars to his local bank and ask to have them exchanged for five gold dollars, and the bank will grant him his request. The bank will do this because its officers know that they can send the silver dollars to their correspondent bank in the East and get gold dollars in exchange. The Eastern bank will oblige the Western one in this transaction because it in turn can effect a similar exchange with the United States Treasury. It is knowledge of the ability of the United States Treasury to do this which induces the local banks, and through them, all tradespeople, to receive silver on equal terms with gold.

The United States Government is able to do this only so long as the coinage of silver is limited, or only so long as the supply of gold in the Treasury is sufficient to meet all demands upon it. Unlimited coinage of silver, or very large currency inflation brought about by the issue of legal-tender notes by the Treasury in payment for silver bullion, tends to drive gold out of the country, and thus to diminish the Treasury supply. When this gold supply becomes so reduced that the Government can meet its obligations only by paying out its hoarded silver, and cannot exchange that silver on demand for gold, then the five silver dollars of our inquiring friend will drop instantly to their real value—of about 64

cents each at this writing—and he will be able to buy only $3.20 worth of goods with them.

The drop from the gold to the silver standard would come with astounding suddenness at the very first whisper that the Government could no longer exchange silver dollars for gold dollars. The bank in Lincolnville, like the banks in every other part of the land, would get the news instantly, and from the banks it would spread to the tradesmen, who would instantly mark their prices up to the requirements of the silver standard—that is more than a third above their former level. The local tradesmen would have to do this because the merchants in all the large cities from whom they purchase their supplies would do it the moment the country slid from the gold standard. But while prices would be advanced instantly, wages of all kinds would advance at a much more moderate pace, and the result would be the same that it always is in such times of inflation—the wage-earner and the poor man generally would be the chief sufferers from the change.

The Government has two remedies at hand when its gold reserve —which is kept in its treasury as a guarantee of its pledge to redeem its legal tenders in gold—begins to melt away. It can stop the issue of legal tenders, or it can issue gold bonds, which amounts to buying gold at a premium. In regard to legal tenders, which have been issued on silver bullion purchases at the rate of 4,500,000 ounces per month since the passage of the Sherman Act of 1890, these can be stopped by the repeal of the act. Under that act the Government had, up to February 1 of the present year, bought 129,926,785 ounces of silver, paying therefor $127,237,410, and issuing legal tenders to that amount. Under the Bland Act, which preceded the Sherman Act, the purchases cost $305,135,497, making a total outlay for silver, during fifteen years, of $432,372, 907. The market value of this silver on January 25 of the present year was $351, 457,257, showing a total loss to the Government, since the silver purchases began, of $80,915,650, or an average of more than $5,000,000 a year.

To understand the difficulties which confront the Government in maintaining a gold standard, it should be borne in mind that since January 1, 1879, there has remained intact and undistributed in the Treasury, down to the beginning of February last, a gold re-

serve of $100,000,000, as a fund pledged substantially to the redemption of the outstanding legal-tender notes, or greenbacks, amounting to $346,000,000. The addition of over $331,000,000 in silver certificates to the volume of legal tenders, taken in connection with the Treasury notes and other outstanding Government promises, raises the total of such legal tenders and promises to $813,000,000, for which there is a redemption fund of only $100,000,000. For redemption purposes the millions of hoarded silver in the treasury, coined and bullion, are of no use whatever. It could not be sold for gold, for the mere offering of it would start a panic in the silver-market, and send the price far below its present level. Its presence in the Treasury is a constant menace to the financial and industrial stability of the country, and to the welfare of the people. The continuation of the policy which has led to the accumulation benefits nobody, except the mine-owners who have silver to sell, and for whom the United States now generously creates a market at an annual expense to the American people of $5,000,000. It would be much better for the country to pay them the five millions as an annual bounty, and stop taking silver, for we should then escape the peril which is aggravated by every fresh issue of silver certificates.—*The Century for May.*

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## A TEXAS LETTER.

IN writing a short letter it will, of course, be impossible to give any detailed discussion of the educational outlook, or to dwell at any length upon the natural resources of the state. This is, as you of't have heard, the land of Italian skies, the land of cotton and corn, the land where the orange blossoms grow, the land where the magnolias and jasmine bloom, the land of poetry and of song.

The Texan prairies are broad, her soil is fertile, her rivers are long, her cities are large, and her people intelligent. In fact, so vast are all her resources that they are yet in their stage of infancy. Mr. Byrne, of Waco, has aptly summarized these facts in the following:

"Texas has more coal area than Pennsylvania; more iron than Alabama; more granite than New Hampshire; more pine than Wis-

consin; more oak than West Virginia; more wheat land than the two Dakotas; more corn land than Illinois; more prairie than Kansas; more cotton land than Mississippi; more sugar land than Louisiana; and more rice land than South Carolina. It contains as many rivers as any other five states, and as much coast as any other three. When all this is duly considered, together with the fact that there are yet 30,000,000 acres of public land in Texas lying idle and ready to furnish homes to actual settlers at $2 per acre on forty years time, what more in heaven's name does the home seeker want?"

These are a few facts concerning the encouragements offered the home seeker; but very likely most of the readers of this letter will be more desirous of a few lines respecting the educational outlook, especially of present, and prospective to future, possibilities.

Perhaps, no civilized country is making such rapid strides in educational development at present as is the south and especially Texas.

There have been charges to the effect that the standard of qualifications is not as high here as it is in some of the other states. This charge is partially just. But all of the better and more efficient of the profession have been, and are, laboring hard to raise the standard, as was evinced by the fact of the State Teachers' Association last year memorializing the legislature to pass a law permitting no institution to advertise under the name college or normal unless of a respectable or approved curriculum. The standard in the city schools is not otherwise than elsewhere, the rural districts perhaps slightly. As mentioned, our best men and women know as well here as elsewhere the difference between the development of the Agaricus Campestris and Homo Sapiens. Those who come here full of visions and dreams, and with minds as barren of thoughts as a sand hill is of vegetation, like all chaff in these western and southern states, are blown away by the slightest breeze.

The old crank, old fogy, the "dead-beat" and the worn out, are relegated to the rear. If you are young, strong, active, worthy and well qualified, vigorous and brave, Texas will treat you royally as she would a king,—her arms are open to receive you.

Texas has eight educational institutions: One University of

Texas for white youth; one Agricultural and Mechanical College for white youth; one Normal School for white teachers; one Normal, Agricultural and Mechanical School for colored youths; one Reformatory for youthful criminals; one Institute for the blind white youth; one Institute for Deaf and Dumb white youth; one Asylum for the Deaf, Dumb and Blind colored youth.

The School Fund:

| | | |
|---|---|---|
| Lands unsold 23,000,000 acres; value | | $57,500,000 |
| Invested in bonds | $7,487,598 | |
| Vendors' lien notes | 14,000,000 | 21,487,598 |
| Cash on hand | | 76,271 |
| Total State Fund | | $79,063,869 |
| County school lands, 5,756,400 acres; value | | 14,391,000 |
| Total State and County fund | | $93,454,869 |
| Total available fund for 1892–93 | | $3,462,890 |
| Number of children white | | 453,720 |
| " " " colored | | 151,685 |
| Total | | 605,405 |

State apportionment for '92–'93 about $5.00 per pupil

With this immense school fund education has a good outlook. Texas is a land of golden opportunities, great possibilities, magnificent promises, and she will accept no scrubby performances. She is worthy of you. The question is, Are you worthy of her?

A. F. HELTMAN.

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## WHY GROW OLD?

BY DR. N. E. YORKE-DAVIES.

IT may seem a curious assertion to make, but it is nevertheless an absolute true one, namely, that a man's life is not measured by the years that he has lived, but by the way in which he has spent them. Many a person may be as young and active at seventy as another at twenty-five, and the length of his life, his health, and his ability to enjoy green old age, depend in a great measure on what the surroundings have been in the earlier years of existence.

It is perfectly true that every one may not be born with a strong and healthy constitution. There are certain constitutional defects that are hereditary in certain families, and these under certain circumstances may influence length of life. For instance, we may inherit scrofulous taint and fall victims, if not careful, in early life to consumption. We may inherit the gouty taint, and be subject to all the ills that this disease entails in middle age in those who do not learn how to diet themselves. We may be born of families in whom the tendency to obesity is more than usually developed, and this in advancing life may be a serious drawback to comfort, and will undoubtedly tend to shorten existence. But all these weaknesses and idiosyncrasies of inherited constitution may be wonderfully improved, and even, eventually, entirely remedied, if in early life proper care in regard to exercise, food, fresh air, and those surroundings which tend to strengthen the system and improve constitutional stamina, are made a part of the daily routine.

A boy or a girl should be trained to indulge in athletic exercises of some kind, so that the habit of taking exercise may become established, and this, once acquired, is seldom neglected even as years advance. The boy who is fond of football, cricket, tennis, and other athletic games will, from the simple love of emulation, always keep up his muscular and nervous strength, and this will stand him in good stead in middle age, and even in a greater degree in old age.

In a former article in this magazine I gave some statistics with regard to the after career of university men, and those statistics proved that their lives were longer than those of others who in college life were of a more sedentary habit. That is, they lived and are living to beyond the average duration of life at any given age. Some who have come to me of late, to remedy by dietetic means—the only means I adopt—the tendency to obesity or gout, have been fine specimens of physique.

We all know that a seed planted, whether it be a grain of wheat or an acorn, depends for its proper development upon careful manuring and proper attention in its early existence, as to whether it becomes a strong plant or dies in its infancy. If it is planted in congenial soil, and is properly watered and cared for, it will live and grow luxuriantly; but if in improper soil, and left to take care

of itself, it will possibly soon die. It is the same with a human being, and however weakly it may be as an infant, if it is properly nursed and taken care of, the foundation is often laid of a mature and sound constitution.

The law of the survival of the fittest may, in some instances, be a cruel one; but it is a beneficent one, for it does not seem right that those entering the world should be handicapped with the weaknesses of their ancestors, and those who have the well-being of the race at heart hold the opinion that constitutions that inherit any strongly marked hereditary weakness should not be allowed to contract obligations that may and will entail suffering upon a future generation.

We do not attempt to rear plants and flowers from imperfect specimens, nor does the agriculturist breed his stock from any but the best and healthiest in any class that he may wish to propagate, and surely the same amount of care and selection should be used with regard to our own species. In the higher ranks of life we see better specimens of the English race than in the lower ones, for more care is exercised in this respect. Something more, of course, must be allowed for this greater care and attention bestowed up to adolescence. Whereas it is estimated that out of every million people born, only ninety thousand reach the age of eighty, eleven thousand that of ninety, and two thousand the age of ninety-five—really treble that number should reach these respective ages; in fact, if all the surroundings of life in every way were as they should be, there is no reason why six times the number should not reach these ages.

Much of the comfort of middle and old age depends upon early training and early feeding, and I refer here more particularly to school life. Neither mind nor body should be *forced*. While the intellectual faculties are being trained, the bodily requirements should be attended to. The constitution is being built up during the years that a boy is being educated for his pursuits in after life. I can remember my own life at a well-known school in a fashionable town five-and-thirty years ago, and I often wonder I survived it when I recall many circumstances. No proper care was taken of us; hunger, thirst, badly cooked meat and vegetables, sanitary defects, were the rule. Many a time, hungry as a schoolboy should

be, have I had put before me for dinner meat that was scarcely warmed outside, and this or nothing had to be my meal. Had it not been for an old man who used to come to the playground selling buns and cakes, I do not know how at times we should have endured the pangs of hunger, or subsisted on the scanty fare allowed, even had it been properly cooked, which it seldom was. Fortunately, nowadays, I believe, the *cuisine* in public schools is much improved, and more care is taken that growing boys should have a sufficiency of those foods that lay the foundations of a sound constitution in after life. A parent would do well, before sending his progeny to school, to see that the ventilation of the rooms, the sanitary arrangements of the school, and the diet and the capabilities for gymnastics and out-door exercise are adequate. These things are of as much, if not of more, importance than the knowledge of Greek and dead languages, etc. There is every reason why, while the intellectual faculties are being trained, proper care should be taken of the material part; in fact, a boy's mind can not be stored with information which may be useful to him in after life and the health maintained at a standard to resist disease, if, at the same time, the brain is not fed by proper food, and the constitutional stamina kept up by exercise and fresh air.

There are some diseases due to carelessness in early life that leave traces that may handicap their possessor throughout existence, and possibly the worst of all is rheumatic fever. In this case, mischief may be done to the heart that can never be remedied, and therefore it is necessary in the days of adolescence, when the individual is careless of consequences, that a boy or a girl should be properly clad, and more especially that the covering next the skin should be flannel. The tendency that rapid changes of temperature have to induce this disease where an individual inherits the gouty and rheumatic diathesis, should make its prevention a matter of great importance, and much may be done by forethought and care to obviate the risk. Another result of school life that may bear bitter fruit in after life, that never seems to have attracted the attention it should do, is that the weak and the strong are allotted the same amount of intellectual work. This should not be. "The wind should be tempered to the shorn lamb," and the amount of intellectual work of each boy should bear some proportion to

his physical and mental power.

Of course, it would be useless to expect the young to apply to themselves rules that bear fruit when they get to middle and old age. They are too young to have forethought and to understand that, like a bottle of new port, they ought to carefully mature, so as to improve as time goes on. It is a melancholy circumstance, as I have seen even recently, a lad, unfortunately left with boundless wealth and a great name, beginning life at seventeen years of age, and becoming a prematurely old man at twenty-four, and there are few medical men of large experience who can not recall numerous instances of men who have overdrawn their constitutional bank before the age of twenty to such an extent that the account can never be placed on the right side on this side of the grave.

If I were asked what factors would conduce to green old age, and the ability to enjoy life to past the eighties, I should say it was a matter of plenty of good food, fresh air and exercise in early life. But, alas! how few people take the trouble to consider for a moment what food would be most suitable for their particular requirements, or the requirements of their children, at a time when this is all-important! We can not put old heads on young shoulders, but we can suggest to those who have young lives in their charge that they have a serious trust, and what their duty is in this respect.

We know that meat and bread furnish all that is necessary to sustain life, but, of course, we do not live on meat and bread alone. The ordinary living is made up of thousands of different articles in daily use. Still, there are certain rules that particularly apply in this way, that certain constitutions require a larger proportion of one particular class of food than other constitutions, and the man who does a large amount of physical labor requires a different mode of dieting from one who is sedentary. It would be impossible to enter into a subject of this kind at length in a short article. Diet, however, undoubtedly has much to do with long life, and this more especially applies in its application to the particular calling of each individual. The engine of an express train is coaled differently from that of a slow one. A race-horse is fed and exercised differently from a cart-horse, etc.

A man brought up in an active occupation that entails a certain amount of muscular exercise can take an amount of food that a man of sedentary habits would not stand, and therefore a certain difference should be made in the composition of the diet taken by the two. Food is simply fuel, and in a general way answers the same purpose.

As. Dr. B. W. Richardson, in his interesting work, Diseases of Modern Life, observes: "The English middle class, who may be exhibited as types of comfortable people, moderately provided for, take on an average twelve ounces of mixed solid food for breakfast, twelve ounces for midday meal, or luncheon, and from twenty to thirty ounces for their late modern dinner or ancient supper. A total of from forty-five to fifty ounces of solid sustenance is in fact taken, to which is added from fifty to sixty ounces of fluid in the way of tea, coffee, water, beer, wine. This excess is at least double the quantity required for the sustainment of their mental and bodily labor."

He then gives a good illustration of this, and says: "I was once consulted in respect to the symptoms with which the idle inmates of a large and wealthy establishment suffered. I was told that an affection very much like dysentery had become developed, and was unusually obstinate of cure. The water supply of the establishment, the drainage, the ventilation, had all in turn been blamed, and altered to no effect. I found the unfortunate sufferers were sitting down regularly to four heavy meals a day, with animal food at each meal; that they took between meals no exercise adequate for utilizing a little of the potential energy that was stowed up in their tightly packed organisms.

"This one fact seemed to me sufficient to account for the phenomenon, and the instant relief that followed the cruel prescription of 'double the work and halve the food' was proof direct that the process of cure was immediate."

This quotation I reproduced as illustrating what I have pointed out, that the amount of food should be adapted to the requirements of the system, and to the amount of physical or intellectual work done, if it is not to be harmful in some way. If these individuals had been huntsmen or whippers-in to a pack of hounds, the food would probably have been just sufficient for the requirements

of the system. If we want to see good illustrations of green old age, we must look for it in men who are noted for their physical and intellectual vigor; and a man who takes active exercise, whether in cutting down trees or brisk walking and other physical pursuits, and in addition to this does plenty of brain work, lives carefully, and drinks but very moderately, may, long after he is an octogenarian, control the destinies of a mighty nation, and give indications of mental and bodily vigor that would shame many half his age. The wiry frame of such a man will be vigorous when the obese and sedentary individual of the same age has drifted into senility and second childhood.

There is no more fatal barrier to long life than obtains in the case of a man who has until middle age been used to active occupation, and been employed in business pursuits that have engrossed his time and energies, and then suddenly retires to a life of ease, luxury, and enjoyment. The revulsion that such a change entails seems to throw the whole human machine out of gear. The surroundings in the way of diet and exercise are seldom considered and adapted to the altered circumstances, and the result is that the different organs that looked to the stimulation of active occupation to keep them in working order, become clogged with waste; and those diseases that depend upon such a state of affairs, such as congested liver, indigestion, obesity, gout, bronchial troubles, etc., soon manifest themselves. Does not this equally apply to any piece of mechanism? Even take a clock, for instance; if dust, rust, and dirt are allowed to accumulate in its working parts, how soon (be its steel ever so highly tempered) does the friction of adventitious matter throw its harmony of movement out of order!

Work of some kind or another seems essential to the well-being of the human organism. Even a machine keeps in better order when it is worked, looked after, and oiled than when it is neglected and allowed to rust. Up to middle age persons may indulge in any amount of hard physical exercise—that is if they are wiry and of proper physical proportion; but if a tendency to corpulency supervenes, certain changes in the blood-vessels and other organs, on whose healthy action robust health depends, take place. These become weakened and altered in texture, so that any attempt at undue exercise is attended with a certain amount of risk. Hence,

any one who wishes to live to old age, and enjoy it, should look with anxiety at the first indication of corpulency. How many patients have consulted me to whom I have pointed out personally, or by correspondence, that they have carried for years an unnecessary burden in the way of surplus weight; and after, by proper dietic treatment, they have been relieved of it, with improvement in health and condition, they have regretted that for so many years they should have been weighted with a useless and uncomfortable load.

Of course, the tendency to corpulency is a very common one, and I know of no condition that tends to shorten life and to make it more of a misery, especially as years advance. The extra work of carrying unnecessary fat entailed on the heart alone is quite sufficient to shorten life; but, worse than this even, it lays the system more open to congestive diseases, and less able to bear treatment for their cure. It is the greatest bar to enjoyable old age. I suppose my experience of this condition is exceptional, as I devote the whole of my professional time to remedying it and a few other diseases of malnutrition, by a system of scientific dieting now well known. As this condition is the result of taking certain foods in undue proportions, its remedy lies in properly apportioning these; and as soon as those who unduly increase in weight are taught what the injurious ingredients of their daily diet are, and advised to curtail them for a time, the result is that they lose unnecessary tissue rapidly and safely, with improvement in every way.

For a month or two the daily intake of food and its constituents must be carefully adjusted. No purgative or other medicine is necessary for the purpose; indeed violent purgative medicines are absolutely injurious, as they simply wash the food through, without giving it time to nourish the system, and debility, palpitation of the heart, and loss of condition result. Of course, a little mild aperient, in the shape of some natural mineral water, such as the Franz Josef, is always harmless, and most people, from errors in diet, require something of this kind occasionally. Electrical appliances and electric baths are quite useless as fat-reducing agents. Quack remedies of all descriptions should be avoided like poison; if they reduce weight they do it at the expense of health. Of this I have seen repeated examples and this induces me more particu-

larly to make these observations.

The meager diet and quantity of water drunk at some of the spas abroad, of course, clears the system of waste; but this is only a temporary benefit, as the individual is not taught what little alteration he should permanently make in his diet. He comes home to his luxurious surroundings, and rapidly recharges the system with fat, gout poison, and other injurious products that form the elements of certain food which he takes in too great excess.

Exercise, proper selection in diet, and a little abstinence are better means of warding off an attack of gout than all the spas in existence, and the symptoms of an impending attack are well known to sufferers. As soon as the system is overcharged with the poison, an acute attack comes on. How much better to prevent the system being charged at all with an unnecessary poison, and this is only to be done by a proper selection in diet! Hard-worked laborers and the poor never suffer from gout, and the Scotch are entirely free. It is a disease of overfeeding—more especially in certain articles of food and drink—and underworking, and entails on its victim much misery, if not worse, and his progeny inherit the curse for generations after.

The evils that arise from errors in diet are properly remedied by diet. An excess of fat invariably depends upon the individual indulging to too great an extent in sweets and farinaceous food, and in not taking sufficient exercise to work it off. The surplus in such a case becomes stored in the system as fat, and can easily, as previously pointed out, be got rid of by a properly constructed dietary. This may be very liberal indeed, but all fat-forming ingredients must be carefully cut off. I have known twenty-five pounds of fat lost in a month by dietetic means alone, with vast improvement in the general health and condition. Indeed, a loss of surplus fat always means a great improvement in condition as well as in activity and vigor.

Different constitutions have peculiarities in regard to the way in which they assimilate food, and the old adage that what is one man's meat is another's poison is a very true one. There is no ailment more common in middle life and in old age than indigestion. This, of course, depends upon improper food taken too frequently

and in undue quantity. As a rule, the victim of indigestion flies to medicines for relief, or to one of the thousand-and-one quack remedies that are advertised to cure everything.

How much more rational would it not be to alter the diet, and to give the stomach the food for which it is craving! If the stomach could talk, I can imagine it, after pills, and gin and bitters, and quack remedies of every description have been poured into it, begging to be relieved of such horrors, and saying, "Give me a little rest, and a cup of beef tea and a biscuit, and go and take a little fresh air and exercise yourself." Instead of this, the miserable organ has to be dosed with all sorts of horrible concoctions in the way of drugs, brandies and sodas, and champagne, to endeavor to stimulate it into action. There is no doubt that the stomach that requires stimulants and potions to enable it to act efficiently, can hardly be said to be in a healthy state, or can long continue to do its work properly.

The digestive organs, unfortunately, are the first to sympathize with any mental worry. They are like a barometer, and indicate the errors of malnutrition and their consequences. The healthy action of every organ depends upon the proper assimilation of the food taken. As soon as the digestive process fails, everything fails, and ill-health results with all its disastrous concomitants.

Indigestion is more particularly the ailment of those engaged in sedentary pursuits, and if a person who is frequently the victim of it would, instead of flying to drugs, try such a diet as the following for a few days, he would not regret doing so. At least, this is my experience:

He should begin the day at 7 a. m. with a tumbler of milk and soda water, or a cup of Liebig's beef tea, or of bovril. At half-past seven he should take a tepid or cold sponge bath and rub the skin thoroughly with a coarse towel or, better still, before the bath, with a massage rubber. At half past eight for his breakfast, one or two cups of weak tea, with a little milk and no sugar. A little stale bread or dry toast. A grilled sole or whiting, or the lean of an underdone mutton chop, or a newly laid egg lightly boiled. For lunch at one, a few oysters and a cut of loin of mutton, some chicken or game or any other light digestible meat. A little stale bread and a glass of dry sherry or moselle. Such a one

should avoid afternoon tea as he would poison, and at six or seven have his dinner, which should consist of plainly cooked fish, mutton, venison, chicken, grouse, partridge, hare, pheasant, tripe boiled in milk, sweetbread, lamb, roast beef, and stale bread. French beans, cauliflower, asparagus, vegetable marrow, or sea kale, may be used as vegetable, and a half wineglassful of cognac in water may be drunk. If he takes wine, one or two glasses of dry sherry after dinner, and before retiring to bed a cup of Liebig's beef tea and a biscuit may be taken.

During the day brisk walking exercise to an extent short of fatigue should be indulged in, or riding or cycling, as the case may be.

Such an individual in a few days would find himself a different person. Slight ailments of this kind, and errors of malnutrition, are much better treated by diet than by medicine. Of course, there are certain habits that are not conducive to long life, such as immoderate indulgence in the passions, whatever they may be, and the abuse of alcohol. There is no reason why a man should not enjoy, in moderation, all the good things of this life, and really the enjoyment of them means taking them in moderation. The man who enjoys wine is the man who takes just sufficient to do him good, and the man who drinks wine to excess, and suffers the next morning from headache as a consequence, can not be said to do so. Excess in alcoholic stimulants in early life means sowing seeds that will bear bitter fruit in mature age—if the individual lives to see it. The habit of "nipping" is conducive to shortening life more than any other habit. It stimulates the different organs of the body into unnatural activity, and the result is that certain of them, such as the liver and the heart, by the work thrown upon them, become, through the enlargement and engorgement of their tissues with blood, diseased after a time. This leads to their being useless as organs of elimination or of healthy structure, with the result that, when middle age is just over, the individual becomes prone to such complaints as Bright's disease, dropsy, cirrhosis of the liver, and other vital indications of decay. These habits are acquired in early life. The wind is sown then and the whirlwind is reaped later on. It is seldom that the young will learn the importance of, if I may so express it, training

for old age, but there are exceptions to this rule. Only a few days ago a man came to consult me; he belonged to the luxurious classes, and, though only twenty-three years of age, seemed to have the forethought of a man of sixty. A fine, handsome young fellow of nearly six feet, he said to me: "Doctor, as most of my family have died young through becoming excessively fat, I want to know what I am to do to avoid this. I am already heavier than I should be." Now, a man in the full enjoyment of health and bodily vigor, who had so much foresight, and who wished to learn the means of attaining green old age, which he saw would be sapped by a hereditary tendency to obesity, undoubtedly deserves to do so, especially as the particular condition that he dreads can be so easily benefited without debarring him almost every luxury within his reach.

If more people followed this example, how many years longer would the average life be, and how much more pleasant would life become! One of the greatest barriers to the enjoyment of life in old age is the condition which this young man dreaded; and my experience is that the food of old people is by no means always what it is wise for them to take. It seems to be the general opinion that old people should be always eating, that they should be stuffed, and that farinaceous food is what they should principally take. This, every one knows, tends to develop corpulency, which is, as I have explained, a most undesirable condition.

I find that if old people are put on a good meat diet in the way of strong soup, beef tea, and animal food, and only just sufficient farinaceous food and fats and sugar to maintain the heat of the body, they increase wonderfully in energy, and, as they often express it, feel twenty years younger. This is only natural; it is a food of energy; the food that builds up muscle, nerve, and constitutional stamina.

The requirements of the system in old age, as a rule, are not very great, and more harm is done by taking too much food than by taking too little. I have known people considerably over seventy derive the greatest benefit from a thorough change in diet. It seems to rejuvenate them. Of course, in old age care should be taken that the body is not subjected to rapid changes of temperature. When the nervous power is decreasing as the result of age,

and the system is losing the power of combating cold and strain upon its energy, a stimulating diet invigorates, and is conducive to maintaining constitutional stamina better than any other.

Any natural death but from old age and general decay is an accidental death; that is, it is due to causes which might, and even perhaps could, have been entirely avoided and remedied in earlier years. But, of course, all the secrets of attaining extreme age are not even now within our reach, and the few that I have pointed out are but a very few, and those of the commonest. It is the inevitable law of Nature that we must die. The vital energy that is implanted in the body at birth is only meant to sustain it for a certain number of years. It may be husbanded or wasted, made to burn slowly or rapidly. It is like the oil in a lamp, and may be burned out to little effect in a little time, or carefully husbanded and preserved, and thus made to last longer and burn brighter. It is a moot question whether every individual is not at birth gifted with the same amount of vital energy and of life-sustaining power. The probability is that each is. The circumstances of the environments from the cradle to the grave determine its future destiny.

It is a well-known fact that half of the infants born in certain crowded streets in Liverpool die before they arrive at the age of one year, whereas, under ordinary or healthy surroundings, a half would not die within the first five years of life. Why is this so? Simply because the surroundings are so detrimental to healthy development. Again, consumption is fatal to sixty thousand people in England alone, annually, and this is a disease born of hereditary taint, due to unhealthy surroundings and other health-depressing influences. In fact, as I have before said, most of the diseases which destroy in early life are due to causes which ought not to exist, and in time, as sanitary science advances, will not exist. We know that already the improved sanitation of the country is bearing fruit, that the average life is lengthening year by year, that many diseases that carried off tens of thousands in the days of our grandfathers are almost harmless now.

Smallpox has lost its terrors. The causes of such fatal diseases as typhoid, diphtheria, etc., are well established, and doubtless, in time, these plagues will be rooted out.

Last year we escaped an epidemic that might have carried off

hundreds of thousands, and why? Because we know its ways, and have not allowed it to spread in the country. The highest duty of the state is to guard the health of the people, and public opinion of recent years is waking up to this fact. An epidemic is no respecter of persons; it may have its origin in the hovel of a pauper, but its baneful influence reaches the lordly palace of the noble, and it ingulfs all classes in its deadly embrace. The aristocrat and the plebeian are socially separated by a very wide gulf, but as far as epidemic disease goes they are conterminous. Social distinctions are no barrier when the angel of death is following in the wake of those plagues that destroy life before its natural termination in old age and general decay.

To sum up, if old age is to be put off to its furthest limits, the individual who wishes to attain it should live carefully up to middle age, taking plenty of exercise, and so adapting the diet that corpulency, gout, and other diseases due to taking too much and improper food without doing sufficient physical work to consume it, can not be developed. Mental and physical occupation are an absolute necessity, if the constitution is to be kept in healthy working order, and this applies equally to both sexes. The human economy will rust out before it will wear out, and there are more killed by idleness than by hard work. Human energy must have some outlet, and if that outlet is not work of some kind, habits are acquired that are not always conducive to long life.

Old age is the proper termination of human life, and as Cicero says: "The happiest ending is when, with intellect unimpaired, and the other senses uninjured, the same Nature which put together the several parts of the machine takes her own work to pieces. As the person who has built a ship or a house likewise takes it down with the greatest ease, so the same Nature which glued together the human machine takes it asunder most skillfully."

Death by extreme old age may be considered the desirable end of a long-continued and at times weary journey. The pilgrim begins it in infancy, full of hope and life; continues it through adolescence in its roseate hue; and onward until middle age, with its cares and anxieties, begins to dispel the illusion. Then comes the time of life when vitality begins to decline, and the body to lose its capacity for enjoyment; then comes the desire for rest, the feeling

that foreshadows the great change; and if this occurs in extreme age, the sufferer seems to fall asleep, as he might do after severe fatigue.

So the long and, in many cases, the weary pilgrimage of life is brought to a close with little apparent derangement of mental powers; the final scene may be short and painless, and the phenomena of dying almost imperceptible. The senses fail as if sleep were about to intervene, the perception becomes gradually more and more obtuse, and by degrees the aged man seems to pass into his final slumber.

In such an end the stock of nerve-power is exhausted—the marvelous and unseen essence, that hidden mistery, that man with all his powers of reasoning, that physiology with all the aid that science has lent it, and the genius of six thousand years, has failed to fathom. In that hour is solved that secret, the mystery of which is only revealed when the Book of Life is closed forever. Then, we may hope, when Nature draws the veil over the eye that is glazing on this world, at that same moment she is opening to some unseen but spiritual eye a vista, the confines of which are only wrapped by the everlasting and immeasurable bounds of eternity.—*The Gentleman's Magazine.*

## *THE SCHOOL-ROOM.*

### GRAMMAR V.

### THE INFINITIVE.

H. B. Brown.

IN this article, no attempt will be made to classify the infinitive or to show the various ways in which it may be used, but to give a few statements and explanations that may make clear some of the difficulties that arise in its discussion.

In the first place it must be understood that the infinitive performs two functions. It is a verb with all of the modifications of a verb excepting person and number, and at the same time is used as a noun, adjective, or adverb. At the very beginning numerous ex-

amples should be given until the pupil is thoroughly familiar with this peculiarity.

In the sentence "To steal is wrong," it is evident that "To steal" is the subject of the verb; in this sense it is used as a noun. If we say "To steal books is wrong," it is plain that "To steal books" is the subject of "is." But "To steal books" being a phrase, the words are not taken as a whole, as they are in a clause, so it is necessary to determine the base of the phrase. It is evident at once that "to steal" is that base. Then it has the use of a noun the subject of "is" as before. If, however, we give the construction of "books" it is found to be the object of "to steal." Thus the infinitive has two distinct functions. As a verb it may have an object, or be modified by an adverb, or, in fact, take any of the modifiers of a verb excepting person and number. As a noun it may be limited by a predicate adjective. As in the sentence given, "wrong" is an adjective used in the predicate with "is" and belongs to the subject "to steal." Whenever an infinitive is limited by an adjective the adjective is used in the predicate.

Again, if we say, "For me to steal books is wrong," the same reasoning may be applied. While the entire phrase "For me to steal books" is the subject, yet "to steal" is the base of the subject. The same as when we say, "The man who went to the city returned." The subject of returned is "The man who went to the city," but "man" is the base of that subject. The same is true of the infinitive. If, in the example given, the form be changed to a finite verb the sentence would read, "That I should steal books is wrong." In this the entire clause is taken as the subject of the verb, and it is plain that the word "that" is an introductory word, by many called an introductory conjunction. In the sentence containing the infinitive it is equally plain that "for" is an introductory word, by some called an introductory preposition, not a preposition showing relation, but an introductory word only.

The clause, "That I should steal books" is substantive, that is, used as a noun, and is taken as a whole. Let the sentence be used in a different form, thus—"It is wrong for me to steal."

Before proceeding with this it might be well to explain the use of a substantive clause used in the same form. For example, in the sentence "It is said that wisdom is better than gold," various

dispositions are made of the word "It" as well as the clause. Many authors place the clause "wisdom is better than gold" as the subject of the verb "is said," and "It" in apposition. Again others place "It" as the subject and the clause in apposition.

If the sentence is taken so that the verb is in the active voice, it is readily seen that the word "It" does not occur, thus "They say that wisdom is better than gold." In this it is plain that the clause is the object of the verb "say." Following the usual directions for changing to the passive voice (viz. The past participle of a transitive verb must be used: some form of the verb "be" must be used as an auxiliary: the object in the active voice becomes the subject in the passive voice), it is plain that the clause "wisdom is better than gold" is the subject of "is said," and the word "It" is an expletive that is thrown out.

What is true in this case, is true with the infinitive. Hence in the sentence, "It is wrong for me to steal" "It" is an expletive, and the infinitive "to steal" has the construction of a noun, the subject of "is."

In the sentence "I desire to be a teacher," the subject of the infinitive is the same as the subject of the finite verb, hence in the nominative case, and the predicate word "teacher" is in the nominative case. The infinitive has the construction of a noun the object of desire," that is, it is the base of the object.

In the sentence "I desire him to be a teacher," the subject of the infinitive is in the objective case, and the predicate word "teacher" is in the objective case, according to the rule. Intransitive verbs and verbs in the passive voice take the same construction after them as before when both words refer to the same thing. In the sentence, "to be" has the construction of a noun, the object of "desire," that is, it is the base of the object.

In the sentence "The boy came to school to study grammar" it is plain that "to study" does not have the use of a noun, but is used to modify the verb "come," not as its object or subject, hence it must have the use of an adverb. "To study" is a transitive verb, and has "grammar" as its object.

In the sentence "The boy desired time to study," "to study" has the construction of an adjective and belongs to "time." If the sentence reads, "It is time for us to begin studying" "to begin"

would also have the construction of an adjective, belonging to time." "It" is an expletive, and "time" the subject of "is."

In this article no attempt has been made to give a complete discussion, but suggestions only. In the next number of THE STUDENT an outline of the subject will be given, showing all the possible forms and uses of the infinitive.

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## THE EDUCATIONAL CAREER.

There is no better field in the United States to-day for young men, ambitious to do themselves and their country service, than the educational. There is no department of our National life where promotion is surer and speedier or the reward, such as it is, more certain than in that of education, whether in lower or higher schools or in public or private institutions. The possible pecuniary rewards are, it is true, not so great as in law, medicine or business; though even in this respect education is not so unfavorable as it was in times gone by. There is a general upward tendency to salaries in all grades of educational work, which gives evidence that the community is beginning to recognize the importance of education and the necessity of offering adequate pecuniary remuneration if it wishes to retain for this work the best talent.

It must be confessed, however, that the real attractions in an educational career must be sought in other circumstances than the possibility of earning a great income. The first of these is social position. It may seem at first blush a little comical to speak of the social position of the teacher. The pedagogue has been known so long in literature and history as rather the butt of the community that one finds it difficult to connect the idea of social dignity with him or his calling. But it is none the less true that the teacher has a position in the community to-day in this country which he has never before had in the history of the world, and this position is increasing in dignity and honor with every passing year. So plain is this that Mr. Bryce was struck by it in his studies of American life. In his "American Commonwealth" he says: "The professors seem to be always among the social aristocracy of the city in which they live, though usually unable from the small-

ness of their income to enjoy social life as the corresponding class does in Scotland or even in England. The position of president is often one of honor and influence. No university dignitaries in Great Britain are so well known to the public or have their opinions quoted with so much respect as the heads of seven or eight leading universities of the United States." This is none too strong. The position of President of Harvard College is no less honored than that of Governor of Massachusetts, and there is no official position in the city of New York, Philadelphia, or Baltimore, that compares in dignity or honor with that of President of Columbia College, or of Provost of the University of Pennsylvania, or of President of Johns Hopkins University, respectively. If we had a National university at Washington, its head would certainly rank in public estimation on a par with the Chief Justice of the Supreme Court. Even in our smaller towns the superintendent of public schools, if he is worthy of his position, occupies easily the most prominent station in the community.

The general public is beginning to take an interest in education such as it has never taken before. A significant sign of the times is the amount of space which our daily newspapers and magazines are giving to educational news—something absolutely unknown even a few years ago. Every new theory in education, almost every new device in schoolroom practice, can now secure public attention and recognition. The condition of our village schools, the requirements in English for admission to colleges, the state of our city school systems now gets full treatment in the columns of our leading periodicals. Any man or woman who has something to say on educational theory or something to do in educational work now has a magnificent opportunity. Finally and chiefly, there is an absolutely unparalleled opportunity to do high and worthy work in our educational system. And it is this fact which should especially appeal to the generous soul of the liberally educated youth. Where the opportunity for service is, thither our youth should throng. Here are possibilities of rendering the Nation and the race services which may fairly be put by the side of the best that men have ever rendered in any field. The organization of National education on a broad basis suited to our wants and conditions is a task so gigantic, so far-reaching in all its ef-

fects, not only upon us but also upon the entire world, that any one of us may well be content if he has helped only in a small part of the field toward the progress of the great cause. Never before has the race felt in any real way that education is an interest of paramount importance to society; that it represents a vital and permanent need to the modern world of even greater importance than the need of protection against the foreign foe, or of justice against the domestic aggressor. It is, therefore, destined to become a great department of public administration, as far-reaching in its working, as important in its functions as the department of foreign affairs, the army, the navy or the courts. This all means an ever widening and multiplying opportunity for the men and women who devote themselves to this great department of modern life. In this, as in the other fields, it goes without the saying that the great prizes will go to the men and women who have brains to conceive and the strength to execute far-reaching plans of wide and lofty scope. The great majority will undoubtedly achieve only a moderate success as they do in law or medicine, or the church; but this will certainly not be on account of any lack of opportunity.—*Prof. Edmund J. James, in the Review of Reviews for June.*

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## A GLIMPSE OF PRIMARY WORK.

RHODA LEE.

"We have just time for a glance at the lowest classes before intermission," said the principal, throwing open the door and leading the way into one of the brightest and most attractive school-rooms I have ever seen.

Sunlight streaming in plentifully on pretty wood work, brand-new furniture and happy children could not well produce any other than a cheery atmosphere, it is true. But there were other touches than those of the sunlight that helped to bring the inward sunshine into this class. The table-drape, though of very inexpensive material, was extremely tasty. The pot of mignonette which stood on it, and the other plants on the window-sill, poured forth their sweetness unstinted. Apparently the greater part of the black-board was in constant use, but there were corners and panels

which were artistically decorated. Flags, pictures and mounted work adorned the walls, and the charts, which stood in convenient corners, were ornamental as well as useful.

There was a class at the board, but, although they seemed to have an interesting lesson from their quietly energetic teacher, it was not there that I felt attracted. My attention was drawn to the busy work at the desks. Here was interest. A glance up as the door opened and then at work again as diligently as ever. There were two classes engaged at their seats—the highest and the lowest. Each pupil in the first class had a box containing, apparently, about two hundred single letters, with which they were building words.

The little ones were busy with the shoe-pegs, making all sorts of figures and designs on their slates. One little fellow had his almost covered and was quite ready to explain the various devices to me. Among them were a chair, table, star, box, spade, saw-horse, and a bird house.

On entering another primary class we found all heads bent down upon the desk. "Dreaming," the teacher said as she met us. An occasional peep was taken by some curious little day-dreamer, but they were all supposed to be in the region of the happy-land until the teacher's "wake up" was heard, when the heads were again raised in readiness for the narrating of the dreams. Spring was naturally the general topic. At the same time there was abundant variety in the detail. The children stood and told their dreams in the most natural manner possible. One little girl was in the country and was helping to feed a lot of little yellow chickens. A little boy was looking for violets in the woods and found some beautiful ones which he took home to his mother. A little girl was going to a picnic on the Queen's birthday in her dream, and told us where it was to be and what she was going to do. Another on being questioned stated that she did not have a "big" dream. She just thought it was a nice warm Saturday and she was taking her best doll for a ride in her carriage.

The last dream we heard before the gong sounded for recess was described by a little fellow as follows: "I was waiting for my papa to come home; and at the side of our house there is a big tree and there is a robin's nest in it. I thought I was watching

the old robins, too, and I saw them carry up four worms for the little robins. And just then I saw my papa."

Our verdict, after hearing these dreams, was that the device was a most effective one in getting the children to talk naturally and easily.

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## HOW BEST TO SECURE REGULARITY OF ATTENDANCE IN PUBLIC SCHOOLS.

By Miss E. C. Mix.

The most skillful teaching will fail utterly in its great object—reproduction and mental training, if given to empty benches and vacant air. Let us then deliberate for a short time on some of the best methods of securing regularity of attendance. For we will all agree that without it no teacher, however earnest and enthusiastic, can make the most of the teaching hours. Were you to ask me the greatest social force we have I should tell you that

APPRECIATION AND SYMPATHY

are twin sisters that go hand in hand and occasionally join hands again to enclose us in their circle of love. Like begets like. Let your pupils know and feel that you appreciate them and their efforts, and rest assured they will sympathize with you in your efforts in their behalf. Establish this bond, strengthen it from day to day by the many little opportunities which present themselves, and you have in your hands and heart the motor power that will draw not only your children, but all men toward you. "That is all very well in theory," says some one with a queenly poise of her youthful head. Yes, sister teacher, it is well in theory; but just a word in your ear! Come down from the pedestal of your dignity and put it into practice and you will find it better. If we would deal successfully with child nature, we must come down—after all, is it down?—to their little plane, and little by little, gently and patiently lead them up. Gather them about you at recess, or on a rainy day, and let them know that you can entertain with something else than the complications of the alphabet and the multiplication tables. Once every child under your control feels and responds to this magnetic influence, the initial letter of your success

is boldly traced against the horizon of the possible.

Next, bring attractive methods to bear. By bright, breezy presentation of the subject, let the pupil feel the actual

PLEASURE OF LEARNING

for the very love it daily unfolds to his mind. The phenomena of nature, the literary gems of our Readers, the appetizing problems of calculation, history, fascinating with deeds of chivalry and renown, all may be woven in such a manner as to make the child sigh regretfully when the lesson is over. What better reward can a teacher ask for a little extra trouble in preparation than the flushed cheeks and sparkling eyes of the future men and women of this country. But alas! I fear too many of us regard our poor little pupils as mere sausage skins to be stuffed with dry facts and rules, leaving all or much of the beauty, the wonder, the romance and natural deductions, in the effort to hurry along, save time and perhaps please the short-sighted parents, who are so pleased when Johnny can go into the next book. If the pupil is allowed to do enough of his work himself to feel victorious when the task is mastered, he then begins to realize—in a dim way, perhaps—what he loses by remaining away. Treading directly on the heels of methods of presentation, comes

REPRODUCTION,

for unless the work can be reproduced in a fairly intelligible way, the teaching is incomplete and imperfect, the subject not grasped and consequently no pleasure is felt in its pursuit, and the moment our pupils lose interest, we lose ground. I think we all feel, especially ungraded school instructors, that lack of time is the weight that fetters us, until we either become calloused to or sink under, the accumulated weight of the various lessons of eight or nine different classes. But with a full knowledge of the great value of reproduction, the teacher has at hand a source of power that economizes time and trains the child along many lines at once. Vary the monotony of school life. Do not let the time table rule us with a rod of iron—so unbending, that the poor children fairly ache when they think of the school room and its treadmill's never ceasing round of sameness. Reward the earnest endeavor with a smile or a word of praise. Oh, that we would all be as liberal with

our smiles as our frowns! The offering of prizes might form an incentive to regular attendance and should you begin to argue against their demoralizing influence, I would ask you plainly, "What are we all working for?" It is reward of some kind or other, and the more we value the reward, the greater the effort. Yes I would commend

THE REWARD SYSTEM,

whether prizes, merit cards, marks, or merely a little well earned praise be the system adopted. Do not be afraid of too much sunshine. Some little lives are gloomy enough with trials that are as real and far more engrossing than your own. Without regular attendance, the foundation of education, thoroughness, must needs be laid upon a shifting and sandy foundation, liable to be undermined by the first wave of penetration that detects the weak spot. So much for indoor methods; but what of our out-door methods, that we will all agree are so important and yet ofttimes so trying, for I maintain that unless you know a child in his home life, understand his environments and home influences, you cannot bring the wisest tactics to bear on the plastic mind and immortal soul of the being given you to teach and mould.

Every home should be visited at least once a term. Where the section is a rural one, this presents many difficulties and occupies much time, but like every other class of laborers, the teacher finds his lot by no means a flowery bed of ease. By this home visiting, so much can be accomplished. The parents see that you are interested and then your work and its importance are thus kept before them. I read an article a short time since, entitled, "Don't talk shop," and teachers were urged not to bore the public with school affairs. Probably that was written by an old bachelor or child hater. I believe in talking school. Let the parents know that if you have a hobby, it is school. If their children are losing ground by irregular attendance, tell them so kindly and pleasantly and by some cleverly introduced anecdote or conversational ruse, point out their responsibility in the matter, for often the parents are more to blame than the children. The end in this case will justify the means. All this requires

PATIENCE;

yes, and not only patience, but patience supported on all sides by tact, enthusiasm and a determination to succeed, cost what it may; patience in the school room, patience with the blindness of the parents, patience with ourselves, for "He that hath no rule over his own spirit is like a city that is broken down and without walls," and is thus pregnable at all points. I despise the man or woman who says, *all this* requires too much effort! I honor the boy or girl, however young he or she may be, who puts a shoulder bravely to the wheel and does his or her best. What are we taking the people's money for, if not to give our best in return? What it the salaries are low? We agree to take them and teach in return. Let us teach in the truest, highest and best sense and then our standard cannot fail to rise. We will find by working for that most necessary element in school, regular attendance, we have strengthened ourselves, and built up our school, whether by exercising the spirit of appreciation and sympathy, which, "like pebbles into water thrown, dilates a ring of light," developing our own and pupils' perceptive and imaginative powers by attractive methods and living in the sunshine of reward rather than under the cloud of fault-finding, which, unlike most others, has no silver lining; persistently insisting on that greatest of character moulders—thoroughness, and using all means of interesting and in many instances enlightening the parents in and about our work. Let us not become careless of the magnitude of our work: It may be our lot to strike the chords of some great mind, now in its infancy, and cause to vibrate through all the centuries to come, feelings, thoughts and truths that shall sway the future human race, for "a little one shall become a thousand and a small one a strong nation."

Truly—

"Our echoes roll from soul to soul
And grow forever and forever."

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## THE CHILD'S STORY.

By Charles Dickens.

[for reproduction.]

ONCE upon a time, a good many years ago, there was a traveler, and he set out upon a journey. It was a magic journey, and

was to seem very long when he began it, and very short when he got half way through.

He traveled along a rather dark path for some little time without meeting anything, until at last he came to a beautiful child. So he said to the child, "What do you do here?" And the child said, "I am always at play. Come and play with me."

So he played with that child the whole day long, and they were very merry. The sky was so blue, the sun was so bright, the water was so sparkling, the leaves were so green, the flowers were so lovely, and they heard such singing-birds, and saw so many butterflies, that everything was beautiful. This was in fine weather. When it rained they loved to watch the falling drops, and to smell the fresh scents. When it blew it was delightful to listen to the wind, and fancy what it said, as it came rushing from its home —where was that, they wondered!—whistling and howling, driving the clouds before it, bending the trees, rumbling in the chimneys, shaking the house, and making the sea roar in fury.

But, when it snowed, that was best of all; for they liked nothing so well as to look up at the white flakes falling thick and fast like down from the breasts of millions of white birds, and to see how smooth and deep the drift was; and to listen to the hush upon the paths and roads.

They had plenty of the finest toys in the world, and the most astonishing picture books; all about scimetars and slippers and turbans and dwarfs and giants and genii and fairies and bluebeards and beanstalks and riches and caverns and forests and Valentines and Orsons; and all new and all true.

But, one day, of a sudden, the traveler lost the child. He called to him over and over again but got no answer. So he went upon his road, and went on for a little while without meeting anything until at last he came to a handsome boy. So he said to the boy, "What do you do here?" and the boy said, "I am always learning. Come and learn with me."

So he learned with that boy about Jupiter and Juno, and the Greeks and the Romans, and I don't know what, and learned more than I could tell—or he either, for he soon forgot a good deal of it. But they were not always learning. They had the merriest games that ever were played. They rowed upon the river in sum-

mer, and skated on the ice in winter; they were active afoot, and active on horseback; at cricket, and all games of ball; at prisoner's base, hare and hounds, follow my leader, and more sports than I can think of; nobody could beat them. They had holidays, too, and Twelfth cakes, and parties where they danced till midnight, and real theaters where they saw palaces of real gold and silver rise out of the real earth, and saw all the wonders of the world at once. As to friends, they had such dear friends and so many of them, that I want the time to reckon them up. They were all young like the handsome boy, and were never to be strange to one another all their lives through.

Still, one day in the midst of all these pleasures, the traveler lost the boy as he had lost the child, and after calling to him in vain, went upon his journey. So he went on for a little while without seeing anything, until at last he came to a young man. So he said to the young man, "What do you do here?" and the young man said, "I am always in love. Come and love with me."

So he went away with that young man, and presently they came to one of the prettiest girls that ever was seen—just like Fanny in the corner there—and she had eyes like Fanny, and hair like Fanny, and dimples like Fanny's, and she laughed and colored just as Fanny does while I am talking about her. So the young man fell in love directly—just as somebody I won't mention, the first time he came here, did with Fanny. Well! he was teazed sometimes—just as somebody used to be by Fanny; and they quarreled sometimes—just as somebody and Fanny used to quarrel; and they made it up and sat in the dark, and wrote letters every day, and never were happy asunder, and were always looking out for one another, and pretending not to, and were engaged at Christmas time, and sat close to one another by the fire, and were going to be married very soon—all exactly like somebody I won't mention and Fanny!

But the traveler lost them one day as he had lost the rest of his friends, and, after calling to them to come back, which they never did, went on upon his journey. So he went on for a little while without seeing anything, until at last he came to a middle-aged gentleman. So he said to the gentleman, "What are you doing

here?" and the answer was, "I am always busy. Come and be busy with me."

So he began to be very busy with that gentleman and they went on through the wood together. The whole journey was through a wood, only it had been open and green at first, like a wood in spring, and now began to be thick and dark like a wood in summer; some of the little trees that had come out earliest, were even turning brown. The gentleman was not alone, but had a lady of about the same age with him, who was his wife; and they had children who were with them too. So they all went on together through the wood, cutting down the trees, and making a path through the branches and the fallen leaves, and carrying burdens and working hard.

Sometimes they came to a long green avenue that opened into deeper woods, then they would hear a very distant little voice crying, "Father, father, I am another child! Stop for me!" and presently they would see a very little figure, growing larger as it came along, running to join them. When it came up they all crowded around it and kissed and welcomed it; and then they all went on together.

Sometimes they came to several avenues at once, and then they all stood still and one of the children said, "Father, I am going to sea;" and another said, "Father, I am going to India;" and another, "Father, I am going to seek my fortune where I can;" and another, "Father, I am going to heaven!" So, with many tears at parting, they went solitary down those avenues, each child upon its way; and the child who went to heaven, rose into the golden air and vanished.

Whenever these partings happened, the traveler looked at the gentleman, and saw him glance up at the sky above the trees where the day was beginning to decline and the sunset to come on He saw, too, that his hair was turning gray. But they never could rest long, for they had their journey to perform, and it was necessary for them to be always busy.

At last there had been so many partings that there were no children left, and only the traveler, the gentleman and the lady went upon their way in company. And now the wood was yellow; and now brown, and the leaves, even of the forest trees, began to fall.

So they came to an avenue that was darker than the rest, and were pressing forward on their journey without looking down it when the lady stopped.

"My husband," said the lady, "I am called."

They listened, and they heard a voice, a long way down the avenue, say, "Mother, mother!"

It was the voice of the first child, who had said, "I am going to heaven!" and the father said, "I pray not yet. The sunset is very near. I pray not yet!"

But the voice cried, "Mother, mother!" without minding him, though his hair was now quite white, and tears were on his face.

Then the mother, who was already drawn into the shade of the dark avenue, and moving away with her arm still round his neck, kissed him and said, "My dearest I am summoned and I go!" And she was gone. And the traveler and he were left alone together.

And they went on and on together, until they came very near the end of the wood, so near that they could see the sunset shining red before them through the trees.

Yet once more, while he broke his way through the branches the traveler lost his friend. He called and called, but there was no reply, and when he passed out of the wood, and saw the peaceful sun going down upon a wide purple prospect, he came to an old man sitting on a fallen tree. So he said to the old man, "What do you do here?" And the old man said, with a calm smile, "I am always remembering. Come and remember with me!" So the traveler sat down by the side of that old man, face to face with the serene sunset; and all his friends came softly back and stood around him. The beautiful child, the handsome boy, the young man in love, the father, mother and children; every one of them was there, and he had lost nothing. So he loved them all and was kind and forbearing with them all, and was always pleased to watch them all, and they all honored and loved him. And I think the traveler must be yourself, dear grandfather, because this is what you do to us, and what we do to you.

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# *DEBATING DEPARTMENT.*

## Should the Government Own and Operate the Railroads?

There are now over 200,000 miles of railroads in the United States representing a value of over $10,000,000,000. The total wealth of the United States is estimated at $60,000,000,000. Thus it will be seen that the railroads comprise one sixth of the total wealth of the country. So intimately are these great highways connected with the business of the country, and such power, therefore, do the men who control them possess that the state has found it necessary to enact laws limiting these powers. Various laws exist in the different states regulating the speed of trains, charges, &c., and even the General Government by the passage of the Interstate Commerce Act has practically asserted that these private corporations do not manage their business in accordance with public interests, and that they need regulating by higher authority.

That these regulations made by cities, states, and by the General Government have brought good results can scarcely be doubted. They have brought about greater protection to the people from accidents, lower transportation rates, and have to some extent prevented unjust discrimination. Now it is argued by some that if partial state control has been beneficial to the people then entire state control ought to be still more beneficial.

Again, it is argued that these great corporations have obtained their charters from the government. Not only have they obtained charters from the public, but they have obtained immense land grants and large bonuses in cash. Indeed, without the aid of the General Government most of the great trans-continental lines would not now be in existence. Is it right that the state should take the peoples' money to build these roads and that after they are in operation their earnings should go into the pockets of private individuals? It is argued further that many railroads are built

merely for speculation when they are not at all needed, and thus a large part of the wealth of the country is unnecessarily tied up in these roads. On this point Mr. James L. Cowles in the May *Arena* gives the following statistics:

"There were engaged in the public service on the railroads of the United States, in the year 1890, more than 1,100,000 freight cars. The earnings of these cars for that year were $714,464,277, received for the transportation of 636,514,617 tons of freight. Now, these appear to be large figures; but when we come to consider the work actually done by each one of these 1,100,000 freight cars, and the work of which these same cars are capable, their appearances change. The average earnings of each freight car engaged in the service of the people of the United States in 1890 were less than $630 per year, less than $13 per week, hardly more than $2 per day; and the average amount of work done by each car was in the same meagre proportions—less than 600 tons for the year, less than 2 tons per day.

The average daily movement of each car was less than 30 miles, and the average number of hours of movement was less than 2 hours out of the 24. Four days out of 5, each of these cars, on the average, lay idle; and when they moved, the average load of the loaded cars was but 10 tons per car, or 175.12 tons per train. The average haul per ton was less than 120 miles. The 58,241 freight cars of the New England roads, owned and leased, transported, during the year 1890, 41,247,486 tons of freight, for which service the railroad managers charged the public $39,833,947.

Each New England freight car earned on an average about $700 per year, less than $14 per week, less than $2.50 per day. And each one of these New England freight cars transported on an average less than 720 tons of freight per year, less than 14 tons of freight per week, less than 3 tons of freight per day. This negligence of our (private) railway managers to make a proper use of their freight equipment has resulted in a waste of capital in useless freight cars, estimated to amount to over $124,000,000, with an interest account of at least $5,000,000. "The cost of maintenance of this [idle] equipment is about $10,000,000 a year, to say nothing of the cost of track room to hold them, locomotives to move them,

and the other minor yet necessa ry expenses which their existence involves."

Now, this may be a satisfactory condition of things to our railway rulers; but I submit that if ordinary business was carried on in this way, the majority of our business men would be in a state of chronic bankruptcy.

If our railroad companies are at all prosperous, it must be because the transportation taxes levied upon the public are far higher than would be necessary under reasonable railway management.

The difference in the cost of hauling an empty passenger train and a loaded train can hardly be more than twenty-five cents a mile. The thing that costs, and what the people of this country are paying for, is the haulage of freight cars and freight trains, passenger cars and passenger trains, *that are not half loaded, and interest and repairs in equipment, not half the time in use*; and one of the causes, I think the principal cause, for this waste of our substance, is our miserable ton-mile, passenger-mile system of railway rates, with its discriminations in favor of some individual and against others, in favor of the town and against the country, and with its exorbitant charges.

No man in the United States who goes to the great exposition next summer on an ordinary passenger car ought to be compelled to pay more than a dollar for his railroad ticket. There would certainly be no occasion for a higher fare if only the railroads were combined under one management, and run in the common interest under such a system of railway rates as I have advocated. Even under the present chaotic condition of our railroad system, a dollar fare to Chicago during the coming summer would, I believe, pay the railroads and pay them well, if only the different systems would work in harmony. It is to be remembered that an average fare per trip of less than fifty-three cents, taking in the whole railroad system of the country, and an average fare of less than thirty cents, sufficed to provide the passenger revenues of the country and of New England in 1890; and the average freight charge in the country during that year was but $1.06, and in New England it was less than ninety-six cents."

Thirdly, the total number of voters in the United States is 12,000,000. The total number of men employed by the railroads is

in round numbers, 1,000,000. It will be seen, therefore, what great political power these corporations can exercise through the votes of their employes. That they exercise this power is well known; for in many states no man who can not secure the support of the railroads need run for office.

But is it practicable for the general government to do this? It is said that the practicability has been proved in Russia, Germany and Australia where the main lines of railroads have been successfully operated by the state.

On the other side of this question it is said that the General Government has no more right to control this property than it has to control any other private property; that the railroad rates are lower now than they would be under the method proposed; that the party in power already has too much patronage under their control and that this would be to increase it ten fold. Mr. J. W. Mason writing in the *American Journal of Politics* makes the following arguments on the negative of the question:

* * In the kingdom of Norway and Sweden much may be learned that is instructive. In 1888 there was a total of 4,591 miles of railway in that country; of these 1,551 miles were built, owned and operated by the government, while 3,040 miles were built, owned and operated by private corporations. It cost the government to build and equip its roads over $41,000 per mile. The private roads were built and equipped for a little over $22,000 per mile—a trifle more than one-half what it cost the government. The roads, private as well as public, are under the control of the government, with rates fixed by the royal administration and approved by the king; and yet the private roads, after paying interest at 4 per cent. on a bonded debt of $12,800,000, pay a dividend of 3.24 per cent on the capital invested, while the government roads, after paying operating expenses, show a surplus of but 2.41 per cent of the cost. No comment can add to the force of these facts. I put them forward in proof that business industries cannot be so successfully and economically carried on by government as by private enterprise. The object of governmental ownership being "cheap transportation," it is incumbent upon its advocates when they cite Germany or any other country where the system is adopted, to show that in those countries such policy has resulted in cheaper

rates than obtained here; and when they attempt that, they fail, because the railway tariffs of America are the lowest in the world.

The next assumption of those who favor the change in ownership is that railrway rates are too high. There is a way to ascertain whether the people pay too much for their railway service, and if it be found that they do, the Government should regulate the abuse. That this has such power is beyond dispute. There was paid to the railway companies of this country in 1889, for freight tariff on the total business done, an average of one cent and one-thousandth of a cent per ton per mile. The average cost to the railways to carry one ton of freight one mile for the same period was .63 of a cent, leaving a net profit of about 3⅔ mills. The net profit on carrying one passenger one mile was a little less, being .307 of a cent. That profit, equally distributed among all the roads according to the capital invested, would amount to about 3 per cent on such capital. Of course it was not so divided. To a certain number of the roads, representing a little over two-thirds of the entire capital stock, no dividends were paid at all; while the dividends paid on the remaining one-third ranged all the way from 1 to 11 per cent; and here is another significant fact: the roads carrying freight and passengers at the lowest rate paid the highest dividends. There is nothing paradoxical in this, as the volume of business enabled them to carry for the lowest rates ever known and reap fair profits at the same time.

The next assumption on the part of the friends of this measure is, that relief from exorbitant rates cannot be looked for from the railways under the present system of ownership. Everybody knows, whether he can account for it or not, that the period since 1873 has been an exceptional one in the whole industrial world—exceptional in this, that prior to that time, while commercial countries had their financial panics and industrial depressions, they always recovered from them in a few years and business increased both in volume and profit—in other words, "good times" returned. The depression which reached this country in 1873, and Europe two years later, was felt throughout every civilized country, and, with brief exceptional periods in limited localities, has continued ever since. We read and hear men talk about dull trade, and that little business is being done. The facts are, that

the volume of business of all kinds, during this period of hard times since 1873, has greatly increased in amount and decreased in profits. It is difficult to ascertain satisfactory averages of the decline of prices since that year, but the best statisticians estimate it at 30 per cent. Labor, skilled and common, is about the only thing that has maintained its ordinary price throughout this period of shrinkage. Now, if railway tariffs during that period have declined in a ratio corresponding with the general decline in price of the products of the country, is the presumption true that no relief from higher rates can be hoped for from the corporations themselves? Well, railway rates have declined, not only 30 per cent, but an average of over 60 per cent.

Now, one of two things is true: either the railway corporations have made this reduction voluntarily by reason of competition or other practical business considerations, or they have been compelled to make them by governmental or state regulation and control. Attribute the fact to which cause we please, it utterly destroys the presumption that no relief from high rates can be hoped for except through the governmental ownership of the railways. A local illustration will serve to make clearer the extent of this reduction. The business of Manitoba Railway for 1889, if done at the rates charged in 1873, would have increased its revenue for the last year $5,000,000. When the wedge is once inserted who shall fix the limit of its entrance? Governmental ownership of the industries of the country follows logically from the premises of those who demand governmental ownership of the railways.

See

Adams' Railroads, pp. 94–116.
Bryce's Am. Commmonwealth, Vol. 2, pp. 511–516.
Ely's Problems of To-day, Chap. 28.
Hadley's Railroad Transportation, Chap. 13.
Hudson's Railways and the Republic, pp. 326–328.
Lalor's Cyclopedia of Political Science, Vol. 3, p. 493.
Forum, Vol. 5, pp. 299, 469; April, 1891.
Arena, Aug. 1891; Jan. 1893.
Engineering Magazine, April, 1893.
North Am. Review, Sept. 1891; Vol. 104, p. 476; Vol. 108, pp. 130–164; Vol. 110, p. 116; Vol. 112, pp. 31–61; Vol. 138, p. 461.
Pop. Science Mo. Vol. 23, p. 289.

# *QUESTIONS AND ANSWERS.*

Editor of THE STUDENT.—Please tell me what and where the "Three Titons" are, as pictured on page 15, Indiana Series Geography.

Answer. —We referred this question to the publishers and received the following reply:

THE STUDENT,
*Valparaiso, Ind.*

Replying to yours of May 23rd, we have to say that the "Three Tetons" on page 15 of the Indiana Complete Geography are three prominent peaks of the Teton range near the line between Wyoming and Idaho just north of the Snake River. The range extends northward from the Snake River to the Yellowstone Park. The highest of these three peaks is called Grand Teton, or sometimes Mt. Hayden. It is 13,691 feet high, as determined by Hayden. This peak is on the Wyoming side of the state line.

The name is misspelled in the Geography. "Tetons" is correct. I am obliged to you for making the inquiry as it affords us an opportunity to correct an error that we had not before discovered.

I am,
Very Respectfully,
EDWARD HAWKINS.

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Who is William Lloyd Garrison?

Answer.—William Lloyd Garrison was a noted abolitionist, born in Newburyport, Mass., 1805, died in New York in 1879. He was first apprenticed as a shoemaker, then as a cabinetmaker, and finally as a printer. He became the publisher of several papers, the first one of which was the *Free Press* and the last one the *Liberator*. He was mobbed, imprisoned, and persecuted in various ways for his views on negro emancipation. His whole life was spent in the agitation of this subject.

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What people used wooden swords in war?

Answer.—It is recorded of the ancient Mexicans that they went into battle with wooden swords that they might not kill their enemies. (see Grimm's "Life of Michael Angelo.")

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How is Egypt governed?

Answer.—The Administration of Egypt is carried on by native ministers subject to the ruling of the Khedive.

From 1879—1883 two Controllers-General, appointed by France and England, had considerable powers in the direction

of the affairs of the country. In the summer of 1882, in consequence of a military rebellion, England intervened, subdued the rising, and restored the power of the Khedive. In this intervention England was not joined by France, and as a result, on January 18, 1883, the Khedive signed a decree abolishing the joint control of England and France. In the place of this Joint Control, the Khedive, on the recommendation of England, appointed an English financial adviser, without whose concurrence no financial decision can be taken. This financial adviser has a right to a seat in the Council of Ministers, but he is not an executive officer.

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Editor STUDENT:

1. Some of my pupils say that no picture can be taken of the stars and other heavenly bodies, also that it is impossible to count the stars. I say both can be done. Which is correct? If I am, please tell me how it could be performed.

2. What is the average daily amount of gastric juice used in digestion? Also is it absorbed and conveyed to the stomach to be used again?

Answer.—1. The sun, moon, stars, meteors, comets, planets, &c. can be photographed. The method is very much the same as employed in photographing other objects, but the details cannot be given in this department.

All visible stars can be counted and they have been. As a matter of course, the countless number of invisible stars can not be counted. Not only are the sun and moon photographed, but they are accurately measured and weighed.

A series of articles on astronomy will shortly be published in THE STUDENT in which these points will be more fully explained.

2. The amount of gastric juice secreted is about thirteen quarts in twenty-four hours.

The gastric juice itself does not return to the stomach, but some of its constituents are probably used again.

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What king was called the "Merry Monarch?"

Answer.—This was Charles II. of England. A member of his court wrote the following epigram concerning him:

"Here lies our sovereign lord, the King
Whose word no man relies on;
Who never said a foolish thing
And never did a wise one."

This having been shown to the king he replied: "That is very true, for my words are my own but my actions are my ministry's."

How does the number of ships owned by the United States compare with the number owned by Great Britain?

Answer.—The number of ships owned by Great Britain is 15,222, by the United States 3,961. This means steamers and sailing vessels both.

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Will you please give me in THE STUDENT the total production of gold and silver in the world.

Answer.—For the year 1891, the production of gold was 6,102,842 ounces; silver, 144,020,715 ounces.

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Please give the names of the ten largest cities of the world and the population of each.

Answer.—The following are the cities according to the latest statistics:

| | |
|---|---|
| London | 4,211,060. |
| Paris | 2,447,960. |
| Canton (China) | 1,600,000. |
| Berlin | 1,578,790. |
| New York | 1,155,290. |
| Tokio | 1,389,680. |
| Vienna | 1,364,540. |
| Chicago | 1,099,850. |
| Philadelphia | 1,046,960. |
| St. Petersburg | 1,003,310. |

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EDITOR STUDENT:

Dear Sir—Will you please define a restrictive and a substantive clause. E. W.

Answer.—A restrictive clause is a clause used to restrict or limit another word; for example, in the sentence, "The man who is industrious will prosper," it is not said that any man will prosper, but restricts the idea to the one "who is industrious." "Who is industrious" is therefore a restrictive clause.

A substantive clause is a clause used as a noun. If we say "I saw that it was a bird," it is evident that the clause "that it was a bird" is the object of the verb "saw." In the sentence, "I went up to where it lay," the clause "where it lay" is the object of the preposition "to". Such clauses are called "substantive clauses" because they have the use and construction of substantives.

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## *HISTORY OF THE MONTH.*

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[May 15 to June 15.]

*May 16.*—The Chinese question was discussed at the Cabinet meeting, and the conclusion was reached that the law could not be enforced, for the reason that there was no money available for that purpose.

*May 17.*—The storm that swept Lake

Erie to-day is reported to be the severest on record on that lake; over twenty lives were lost.—The National Commission of the World's Fair voted to call for the resignation of Theodore Thomas as Musical Director.

*May 18.*—The one hundred third General Assembly of the Presbyterian Church in the United States was opened in Washington yesterday.—The Infanta Eulalia arrived in New York.—Director General Davis requested the resignation of Theodore Thomas as Musical Director of the World's Fair.—It is announced that the Cherokee Strip has been purchased by the United States and is to be added to Oklahoma Territory; this will make it a good sized state.—A treaty of commerce has been concluded between Spain and Germany.

*May 19.*—The Infanta Eulalia was welcomed in New York and took a special train to Washington.—At a meeting of the Cabinet it was decided not to attempt to enforce the Geary law until funds have been provided for that purpose.—James E. Murdock, the famous actor, died at his home near Cincinnati, Ohio.—The Italian cabinet has resigned.

*May 20.*—The Infanta Eulalia, was officially received by the President and Mrs. Cleveland; Mrs. Cleveland returned the call in the afternoon.—A great fire at Saginaw, Michigan, caused a loss of over $1,000,000.

*May 21.*—More than a dozen lives have been lost in the forest fires of Michigan.

*May 22.*—The Presbyterian General Assembly, in Washington, passed resolutions condemning the Chinese exclusion law.—The World's Press Congress opened in Chicago.

*May 23.*—Tornadoes did much damage to property in Ohio, Indiana, and Michigan.—The Presbyterian General Assembly began the consideration of the Briggs case.—President and Mrs. Cleveland entertained the Infanta Eulalia at a state dinner.—The Nicarauguan revolutionists defeated the government troops with great loss on Saturday.

*May 24.*—The Infanta Eulalia and her party visited Mount Vernon.—A monument to the memory of Alexander H. Stephens was unveiled at Liberty Hall, Georgia.

*May 25*—Seventeen foreign countries withdrew their exhibits from the World's Fair on account of dissatisfaction with the system of awards.

*May 26.*—Ex-Secretary Charles Foster, of Ohio, assigned with liabilities of $600,000.

*May 27.*—The body of Jefferson Davis was removed from the tomb at New Orleans preparatory to its removal to Richmond, Va,

*May 28.*—The World's Fair was opened all day to-day (Sunday). The attendance is estimated at 125,000.

*May 29.*—The trial of Prof. Briggs for heresy was begun by the Presbyterian Gen. Assembly.

*May 30.*—The arguments were finished in the Briggs heresy trial.—Decoration Day was observed throughout the country.

*May 31*—The Presbyterian General Assembly voted by 383 to 116 to convict Dr. Briggs of heresy.—The body of Jefferson Davis was buried in Hollywood cemetery, Richmond, Va.

*June 1.*—Tornadoes did great damage to property in Mississippi, Tennessee, Arkansas, and Kentucky.—The Presbyterian General Assembly, sitting

as a court, suspended Dr. Briggs from the ministry.

*June 2.*—Governor Brown prorogued the session of the Rhode Island legislature to Jan. 1894.

*June 3.*—A negro named Bush was lynched at Decatur Ill.

*June 4.*—The Rev. James H. Ecob, of Albany will withdraw from the Presbyterian Church as a result of the decision in the Briggs case.

*June 5.*—Lizzie Borden was placed on trial in New Bedford, Mass., for the alleged murder of her parents.—The President appointed Charles W. Dayton as postmaster at New York.—The President stated that he would call an extra session of Congress in the early part of Sept.—The Anti-trust Convention was opened in Chicago with delegates representing thirty-four states.

*June 6.*—Many failures of banks and business firms were reported from various parts of the country.—The Infanta Eulalia reached Chicago from New York.—The Russian extradition treaty was officially promulgated by President Cleveland.—The Suez Canal stockholders had a meeting in Paris in which Ferdinand and Charles De Lesseps were re-elected as members of the Board of Directors.

*June 7.*—Edwin Booth died.—The Ohio Republican State Convention began its session at Columbus.—The business portion of Fargo, N. D., was destroyed by fire. 2200 people were rendered homeless.

*June 8.*—The Federal Court in Chicago decided that the World's Fair could not be opened on Sunday. The case was appealed.—The Infanta Eulalia made her first visit to the World's Fair.—Governor McKinley and the present state officers were unanimously re nominated by the Republican State Convention in Ohio.—The loss in the Fargo fire is estimated at $3,000,000.

*June 9.*—The floor of the Ford Theater, in Washington, fell while nearly four hundred Government clerks were at work inside. Twenty-one persons were killed and sixty eight injured.

*June 10.*—A Court of Inquiry was appointed in the matter of Ford Theater disaster.

*June 11.*—It is reported that thirty pieces of priceless laces forming a part of the Italian exhibit at the World's Fair are missing.

*June 12.*—The department clerks in Washington made a demonstration against Col. Ainsworth and threatened to lynch him on account of his connection with the Ford Theater disaster.

*June 13.*—Carlos Navaretto, the well known Cuban poet, died.

*June 14.*—The Infanta Eulalia left Chicago for Niagara Falls.

*Jnne 15.*—The French Court of Cassation has set aside the sentences of the men convicted in the Panama trial on account of the Statute of Limitation.

# DEPARTMENT OF ARITHMETIC.

Edited by J. B. F. SHOWALTER.

## The Analytical Solution in Percentage Concluded.

Thus far in our discussion of this subject we have arrived at the following conclusions; namely,

First. That the equation cannot be

dispensed with in the analytical solution.

Second. That the equation cannot be separated from the general axioms, (*i.e.* that axiomatical reasoning is a necessary part of equational reasoning).

Third. That the *general axioms* belong, therefore, to arithmetical reasoning.

In concluding the discussion on this part of the subject, we are to show that "Clearing an equation of fractions," and "Transposition," also belong, and properly so, in arithmetic.

As to the first, "Clearing an equation of fractions," there are two cases:

(a) When but one member of the equation is fractional, and

(b) When both members are fractional, either wholly or partially.

In the discussion of this part of the subject, we will understand that in any equation there are properly but *two members*, while there may be *any number of terms*; the members are connected by the sign of equality (=) while the terms are connected, *always*, either by plus (+) or by minus (—).

We must also keep in mind the fact that the value of each member depends upon each of the values of its several terms, and hence to multiply either member of the equation by any quantity is to multiply each of the several terms of that member by the quantity.

Let us now take a problem in each of the above cases, and see what is necessary in order to clear the equation of fractions.

Case one, when but one member is fractional:

Ex. If $\frac{4}{5}$ of John's money=$40, how much has he?

Now, since *one* time the part that we are using=$40, *two* times the part =2 ×$40, *three* times the part=3×$40, *four* times the part=4×$40, and *five* times the part=5×$40, etc., by the axiom that "If equals be multiplied by the same quantity their products will be equal."

∴ If $\frac{4}{5}$ of John's money=$40

Then $5\times\frac{4}{5}$ " " " =5×$40.

But $5\times\frac{4}{5}=4$.

∴ $5\times\frac{4}{5}$ of John's money=4 times John's money, and

∴ If $\frac{4}{5}$ of John's money=$40, then 4×John's money=5×$40, or $200.

Now, by examining our result, we see that it has been obtained by multiplying both members of the equation by the denominator of the fractional member; this we are permitted to do according to the axiom quoted above, that 'If we multiply equals by the same quantity their products will be equal."

Hence, clearing the equation of fractions is merely a convenient way—a shorter way—of saying that multiplying both members of the equation by the same quantity, etc.

Case two, when both members are fractional:

Ex. $\frac{4}{5}$ of John's money=$\frac{2}{3}$ of $60, how much has he?

To clear one member of fractions we multiplied both by its denominator. (See case one).

∴ If $\frac{4}{5}$ of John's money=$\frac{2}{3}$ of $60,

Then 4 times " " =5×$\frac{2}{3}$ of $60 or $\frac{10}{3}$ of $60. (multiplying both members by 5).

In the same way, using the member on the right as the fractional member, we have

If 4 times John's money=$\frac{10}{3}$×$60,

Then 12 " " " =10×$60,

or $600, by multiplying both members by 3, the denominator of the fractional member.

Hence, we see, to clear both members of fractions we multiply by each denominator separately. Now, since multiplying any number by two quantities is the same as multiplying by their product, therefore both operations may be performed at once as follows:

$\frac{4}{5}$ of John's money=$\frac{2}{3}$ of $60

∴ 15×$\frac{4}{5}$ of John's money=15×$\frac{2}{3}$ of $60, or

12 times John's money=10×$60 or $600. (multiplying both members by 12, the least common multiple of the denominators.)

Hence, to clear any equation of fractions, we see it is only necessary to multiply both members of the equation by the L. C. M. of the denominators, which we have a right to do according to the general axiom that "If equal quantities be multiplied by the same quantity their products will be equal."

Second, "Transposition."

To show that transposition, too, be-

longs in Arithmetic concludes this part of the discussion.

As in part first, let us explain by means of a problem.

Sold a horse @ 20% gain. After paying a debt of $40, I had left $150; how much did the horse cost?

1. 100% = cost of the horse.
2. 20% = gain.
3. 120% = selling price.
4. $40 = debt paid.
5. Then 120% of the cost − $40 = $150, what I had left.
6. Since the member on the left is $40 *less* than 120% of the cost, if it be increased by $40 we will have just 120% of the cost; and if we increase the member on the right by the same amount, we will then have $150 + $40; now we have a right to add the same to each member according to the general axiom that "If the same quantity be added to equal quantities their sums will be equal." Therefore we have the following equation:
7. If 120% of the cost − $40 = $150 (equation 5)
8. Then 120% of the cost = $150 + $40 (See No. 6).

Now, examine equation (8), and see that the transposition has been made; notice also that the reasoning is axiomatical, and that we have used but one axiom. However, transposition requires, in general, two axioms, and if the equation had read 120% of the cost + $40, we would have used the other axiom; namely, "If the same quantity be subtracted from equal quantities their remainders will be equal."

Hence it is true that, if the general axioms be admitted in arithmetical reasoning,—which we believe we have shown in our previous argument to be an absolute necessity—"Transposition" and "Clearing of fractions" belong in arithmetic, since they are performed by means of these axioms.

It is not a question as to whetner we wish to admit these axioms in arithmetical reasoning, but the question is, can the higher and more difficult arithmetical problems be solved without them?

To admit one of the general axioms is to admit them all, as no distinction can possibly be made between any of of the general axioms.

Now, therefore, if your arithmetical solution depends upon axiomatical reasoning, or if it breaks down without it, then all argument against the admission of the general axioms breaks down on the ground that you have an arithmetical problem which has no arithmetical solution.

Therefore, as the last argument that I shall advance, let us take a problem, similar to which you may find one or more in every arithmetic published probably within the last 20 years, and see whether its solution is possible without the use of one of the general axioms.

Problem:

Sold a car load of flour, and reserving my commissions, 5% for selling, and 3% for buying, I invested the net proceeds in sugar; if my whole commission was $240, what was the sale of the flour, and how much did the sugar cost?

Solution:

1. 100% = Amt. of sale.
2. 5% = Selling com.
3. 95% = Proceeds.
4. 100% = Amt. of purchase of sugar.
5. 3% = Buying com.
6. 103% = Whole cost of sugar.
7. ∴ 103% of the purchase of sugar = 95% of the sale of the flour.
8. 1% of the sugar = $\frac{95}{103}$% of flour.
9. 3% of the sugar = $3 \times \frac{95}{103}$% " " or $2\frac{71}{103}$% of flour, my buying com. in terms of the flour.
10. ∴ I received 5% of the flour for selling it, and $2\frac{71}{103}$% of the flour for buying the sugar; or
11. I received $7\frac{71}{103}$% of the flour for my whole commission.

But I received $240 for my whole com.

12. ∴ $7\frac{71}{103}$% of the flour = $240.

Now, the form of equation 12 cannot be avoided, whether the solution conforms to one in percentage or whether it be a fractional form, the result is the same; therefore, if the question be asked, *why* is $7\frac{71}{103}$% of the flour = $240, the answer *must* be, "If two quantities are each equal to the same quantity they are equal to each other."

We may avoid quoting the axiom for our pupils, and instead give some kind of an answer that will probably perple them more than the other, and will hence cause them not to repeat th:

question, but in answer to our own inquiry as to why it is so, we must appeal to the axiom quoted above. So, we believe, the better way is to use the general axioms in arithmetic, teach the pupils how to use them in their arithmetical reasoning, have them give the reason for having taken the particular step, and thus avoid one half or more of the difficulty in beginning the next subject, namely, Algebra. ED.

[In concluding the above discussion we have taken all the space allotted us for our department, and hence we will defer the questions and solutions till next issue.

In the meantime, however, let our arithmetical friends be as prompt as possible in responding to questions in the June number.

In next issue will be discussed the Arithmetical signs. Also the subject of Percent on and Percent off. ED ]

## THE EDITOR.

The following letter written by a mother to the *North Carolina Teacher* expresses what thousands of mothers feel but seldom venture to express in public:

"This is the third year my son has been to college. He joined the ball team as soon as he entered, and I think his connection with the team has had great influence on his life in a very objectional way. He was a studious boy before he went to college, and always had a fine record in his classes. He is now so entirely absorbed in some wild ball match that he rarely talks or thinks about anything else. When he comes home occasionally he talks nothing but foot ball slang, and will not read anything except records of games as published in the sporting papers. He speaks of his sisters as 'half-back,' 'center-rush,' and other such outlandish things that we are frequently shocked.

When I asked him how he was getting along in his classes he said 'Oh! it doesn't matter much about the recitations, the professors will help us through if we only defeat some rival college in the foot-ball game. You see, mother, it takes us about a month of hard work in training before we play a match game, and of course we have to go easy on the studying business during that time, and when we whip out the other fellows and get back to college we don't talk much about anything else except how we cleaned 'em up.'

My son was always very fond of staying at home at night to enjoy the evening with the family—now he delights in loafing about the hotels and drug stores at night to 'talk foot-ball with the boys,' and we scarcely ever see him at home except at meal times."

The question to-day is not, Where can I send my boy to take a course in foot-ball, base-ball, rowing, and numerous other athletic games that are monopolizing the time of the student in a large number of colleges to-day; but Where can I send him so that the money I spend for him will be utilized in giving him a good practical education? Where can I send him so that close application to his studies will not degrade him in the eyes of his school-mates, and where he can win distinction as a scholar instead of as a foot-ball kicker? These are the questions with the great mass of the people who use practical common sense in education. These are the demands which must be met by the educational institutions of the country.

It is the meeting of these demands in the highest degree that has brought the Northern Indiana School, in a few years time, from a school of a few dozen students to one of the foremost educational institutions in the country, and in attendance far outstripping all others.

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In the June issue of THE STUDENT we made some criticisms concerning the extortion practiced on the World's Fair grounds on the opening day. It is but just to say that there is now no just ground for the criticisms which were so universally made during the early days of the Fair. So abundant are the accomodations, and so sharp is the competition that everything has become remarkably low in price. Hotel rates seem at the present time to be much lower than they were a year ago. If the railroads make the reduction which they seem now about to make, there will be nothing to prevent the people from seeing the wonderful White City. Nothing but a personal visit can give one an idea of the magnitude of this extraordinary aggregation of the world's wonders. That such a city as the "White City" could be built in the short space of time in which this has been built is itself a marvel that rivals the wonders of the Arabian Nights.

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**Personals.**

Prof. L. I. Knowlton, of Butte, Montana, has closed his year's work at that place and is spending the summer surveying at South Bend.

Philip Kintner has just closed a successful year's teaching in his county.

Miss Martha Anderson has been re-elected to her old position at Fergus Falls, Minn.

F. P. Young has completed the course in the Louisville Medical College and received his degree. He won the highest honors in a class of two hundred twenty-four and was awarded three gold medals, one for the highest standing in anatomy, one in physiology and one for general proficiency.

Miss Ethel Cauble is teaching music at her home. She has thirty-five private pupils.

J. A. Alexander has opened a summer Normal at Odon, Ind., and has an enrollment of eighty pupils. His work in that place is receiving the highest praise.

R. H. Gregory, scientific of '91, is now Dr. Gregory, having completed the medical course in the Louisville Medical College. It is unnecessary to say that Mr. Gregory stood high in his class.

C. E. Hatchett is practicing law in Kansas City, Mo. He is well pleased with his location and is meeting with good success.

E. E. Beck, classic of '86, is now one of the prominent Attorneys of Hammond, Ind.

W. T. Algire, classic of '85,

is superintendent of schools at Greenville, Ohio, where he has been doing excellent work for several years.

Prof. H. H. Loring has been re-elected County Supt. of Porter Co., Ind. for another term.

Prof. John H. Bair has been re-elected County Superintendent of St. Joseph Co., Ind.

O. W. Storer has closed a successful year's work at Dunkirk, Ind., and has returned to Valparaiso to attend school.

N. C. Stott has been elected principal of the schools at Eureka, Utah Ter. Mr. Stott has completed the scientific and classic courses, the course in special mathematics and the law course in the N. I. N. S. In every department of study he has been distinguished as a thorough scholar. THE STUDENT wishes him the success his high attainments deserve.

Miss Sarah Kanouse has been re-elected to her old position in the Southern Iowa Normal at Bloomfield, Iowa, where she has been doing very successful work during the past year.

Lyman A. Vest, a graduate of the musical department, has accepted a position as Musical Director of the Hedrick Normal School. Mr. Vest stood high as a musician here in Valparaiso and he will no doubt meet with abundant success in his new position.

J. M. Stephens, scientific of '91, has been teaching at Apple River, Ill. He goes back to that place next year.

H. B. Miller has left "Sunny Texas" to sperd the summer in Valparaiso and vicinity.

Miss Carrie Mills will teach at Osborn, Kansas, during the coming year.

D. D. Feldman goes back to Creighton, Nebraska, next year. He will have his old position in the high school.

C. H. Gordinier has been re-elected to the Superintendency of the Middlesboro, (Ky.) city school.

Miss Jennie Shepard, one of the Normal's popular teachers, was married on the 5th of May to Mr. John Webb. Mr. and Mrs. Webb will continue to make their home in Valparaiso.

Prof. E. H. Stroeter, who has been assistant principal of the high school at Liberty, Missouri, during the past year, has been promoted to the position of principal for the coming year.

Miss Cassie Quinlan was erroneously reported in the last issue as being at College Mound, Mo. She has been teaching during the past year at Kiowa, Kan. Her school closed May 28th, and she is now at her home in Lawrence Kansas.

Amos A. Quinlan is attending school at the Kansas University, Lawrence Kansas.

It was stated in a former issue of THE STUDENT that J. A. Pine was studying law. This

was a mistake. Mr. Pine has been teaching school during the past year and is now at his home in Ohio.

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**Crescent Society.**

The following are the Crescent officers for the Summer term:

L. G. Campbell, Pres.; W. C. Gunnerson, Vice Pres.; Ella McDonald, Rec. Sec.; Mertis Whitacre, Cor. Sec.; E. G. Davis, Treas.; W. W. Rush, 1st Critic; Martha Fulton, 2nd Critic; E. E. Hipsher, 1st Chorister; Marie Adams, 2nd Chorister; H. A. Erikson, Editor; Jennie Fulton, Gabriel Loftfield, Marshals; W. C. Gunnerson, Orville Price, and Carrie Wilhoyte, Executive Committee.

Miss Nellie Austin is again pursuing her studies at the Normal, after a year of successful teaching.

Among the many that have recently been visiting friends on College Hill are Kate Austin, A. D. Bitner and A. L. Barthel.

On the evening of June 24 the Crescent gave a Strawberry Festival in Recital Hall. A large number attended and a pleasant time was had.

We are glad to announce that C. H. Gordinier is back to stay the remainder of the year.

J. C. Sathre has been elected to take the place of E. M. Moore on the Anniversary Program, as the latter was obliged to go away. H. A. E.

**N. I. N. S. Notes.**

Rev T. DeWitt Talmage delivered his lecture on the "Bright Side of Things" in the New College Auditorium on the evening of June 8th.

Miss Carrie Wooderson won the prize in the elocutionary contest.

The Old Chapel determined not to be behind the times and accordingly "changed its name." It is now called "Recital Hall." The change was made on the evening of May 22 when the music class gave the first of a series of recitals. Miss Rebecca Volkee made the christening speech.

On Monday evening May 22, the musical department began its series of musical recitals and operas. These entertainments will continue through the summer, closing with a grand commencement Aug. 8. This department has always given a high grade of entertainments. They promise to give better than ever this year. The first was given by Miss Carrie Parker, of Manteno, Ill., and Miss Lula White, of Valparaiso, who rendered an excellent program.

Prof. Carver has been giving a series of lectures on evolution. It is needless to say that these lectures attracted large audiences, as anything from Prof. Carver always does.

Prof. Kinsey gave an interesting lecture on Alaska. In most hands descriptive lectures are dry prose, but Prof. Kinsey has

the power of turning the dryest facts and statistics into sparkling poetry.

The production of the Oratorio of "Elijah" by the musical department was the first great musical event of the season. Prof. Heritage took the part of Elijah, and was ably supported by Miss Grace Groth, Mrs. Jennie Beach, Messrs. H. A. Rogers and J. W. Quick. The Heritage Lady Quartet and the Arion Male Quartet also rendered good music. The successful rendering of this grade of music attests the efficiency of the work done in this department.

The Kindergarten Department held their commencement exercises on June 1. The following are the graduates in that department: Mary Hemstock, Janet Poirier, Nettie Simpson, Fanny Dayton, Alice Baird, Mary W. Gregory, Anna Robinson, Eve DeCrow, Elma Wines, Lethe Castlio, Eva Schneider, Mona Oliphant, Grace Evans.

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## MAY EXAMINATION QUESTIONS FOR INDIANA.

### READING.

"And Ezra opened the book in the sight of all the people, * * * and when he opened it all the people stood up. * * * So they read in the book in the law of God distinctly, and gave the sense, and caused [the people] to understand the reading." — Nehemiah, viii, 5.

1. What points are applicable to the modern teacher in the above extract? 10.

2. To what extent and for what reason would you have pupils commit and recite the "definition words" of the reading lesson? 20.

3. Does the much supplementary reading in the schools of the present generation really take the place of the old style declamation? Justify your answer. 20.

4. What is meant by inflection in reading? Define the different kinds and write sentences in illustration of each kind. 20.

5. What proportion of the reading recitation period should be occupied by the teacher in reading to the children? 10.

6. At what stage of the recitation may concert reading be given to advantage? 20.

ANSWERS.

1. The points are that they read distinctly and gave the sense, and caused the people to understand.

2. It is proper to learn "definition words." Frequently, however, there are words whose meaning is difficult to give by a formal definition, and such words are better learned by their use in context than in any other way. The reason for learning definitions is that aside from making the sense of the piece clearer, they give the pupil a greater command of language.

3. No; it does not. To merely read a selection and to "declaim" it are quite different processes. The declamation calls for a much more thorough study of a selection.

4. Inflection is a bending or sliding of the voice either upward or downward.

The rising inflection is an upward slide of the voice, as, Are you going home?

The falling inflection is a downward slide of the voice, as, Where is London?

5. This depends so much on circum-

stances that it is difficult to give any general rule. Since young pupils must learn largely by imitation the teacher should take occasion to do a considerable amount of reading.

6. Always at the last part of the recitation.

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## ARITHMETIC.

1. By means of a problem and a drawing develop the rule for finding the contents of a rectangular solid.

2. Three fourths of A.'s age equals four sevenths of B.'s, and the difference of their ages is 10 years. How old is each? Write out full analysis.

3. B. sold tea for 137½ per cent. of the cost, and thereby gained 50 cents on a pound. What was the cost per pound?

4. Last year my expenses, which were 80 per cent. of my last year's income, equaled 96 per cent. of my expenses this year, and my income equaled 75 per cent. of this year's income: last year I saved $480. How much do I save this year?

5. What per cent. must be assessed upon $1,500,000 to produce $29,400 after paying 2 per cent. for collection?

6. What will it cost to paint an octagonal church spire whose slant height is 80 feet and the sides of whose base are 8 feet, at 5½ cents per sq. foot.

7. What is due July 16, 1875, on a note for $540, at 6 per cent., dated Sept. 10 1872, and bearing the following indorsements:

Jan. 22, 1873, received.....$120
March 1, 1874, received.....25
Oct. 22, 1874, received.....125

8. Explain the difference between troy weight, avoirdupois weight and apothecaries' weight, and show how avoridupois may be converted into ounces troy and apothecaries.

ANSWERS.

I.

Suppose the dimensions of the rectangular solid are 6 ft. long, 3 ft. wide, and 2 ft. thick.

Now, let us divide one of the 6 ft. edges, and one of the 3 ft. edges into equal parts, say 1 ft. each. Now, through the points of division draw lines parallel to the sides and ends; we will then have 3 strips, each 6 ft. long, in the base of the solid. Now, let us divide one of the 2 ft. edges into equal parts of the same size: we will then have two solids, each one containing 3 rectangular pieces, 6 ft.$\times$1 ft.$\times$1 ft. or 6 cu. ft., or the whole rectangular solid would contain, in all, 6 of these rectangular pieces, each 6 ft.$\times$1 ft.$\times$1 ft., or 36 cu. ft., using a rectangular block 1 ft.$\times$1 ft.$\times$1 ft. as the unit.

II.

1. If ¾ of A's age=$\frac{4}{7}$ of B's
2. Then A's " =$\frac{4}{3}\times\frac{4}{7}$ of B's=$\frac{16}{21}$ of B's
3. $\frac{21}{21}$ of B's$-\frac{16}{21}$ of B's=$\frac{5}{21}$ of B's, the difference in their ages.
4. ∴ $\frac{5}{21}$ of B's age=10 yrs.
5. And B's age=$\frac{21}{5}$ of 10 " or 42 yrs.
6. And A's " =$\frac{16}{21}$ of B's age or $\frac{16}{21}$ of 42 yrs.=32 yrs.

III.

1. 100% =cost of tea per pound.
2. 137½% =selling price per pound.
3. 137½%$-$100% =37½%, the gain per pound.
4. ∴ 37½% =50c.
5. 1% =$\frac{2}{75}$ of 50c or 1⅓c.
6. 100% =100$\times$1⅓c=$1.33⅓

IV.

1. Let 100% =my last year's income.
2. Then 80% = " " " expenses.
3. And 20% = " " " gain.
4. ∴ 20% of last year's income=$480
5. 1% of last year's income=$24
6. And 100% of last year's income=$2400
7. Also 80% of last year's income=$1920, last year's expenses.
8. Again, let 100% =this year's expenses.
9. Then 96% =$1920
10. 1% =$\frac{1}{96}$ of $1920 or $20
11. 100% =100$\times$$20 or $2000, this year's expenses.
12. Also, let 100% =this year's income.
13. 75% =$2400
14. 1% =1$\frac{1}{75}$ of $2400 or $32

15. 100% = 100 × $32 or $3200, this year's income.

16. $3200, this year's income—$2400, this year's expenses = $800, this year's gain.

V.

1. Brokerage for collecting is reckoned on amount of collection.

2. ∴ Let 100% = amt. of collection

3. 2% = Brokerage

4. 98% = proceeds of the collection

5. ∴ 98% of the collection = $29400

6. 1% " " " $= \frac{1}{98}$ of $29400 or $300

7. 100% of the collection = 100 × $300 or $30000

8. Then $30,000 is what % of $1,500,000?

9. $1,500,000 = 100%, taxable property.

10. $1\% = \frac{1}{15000}\%$

11. $30000 = \frac{30000}{15000}\%$ or 2%, rate of assessment.

VI.

1. The painted surface will be made up of 8 equal isosceles triangles, whose common altitude is 80 ft. and whose bases are each 8 ft.

2. Area of 1 triangle = ½ of (80 × 8) sq. ft. or 320 sq. ft.

3. Area of 8 triangles = 8 × 320 sq. ft. or 2560 sq. ft.

4. 2560 sq. ft. @ 5½c = $150.80.

NOTE.—Since the painted surface is a regular pyramid, whose perimeter is 8 × 8 ft. or 64 ft., and whose slant hight is 80 ft., therefore the area could be found by multiplying one-half the slant height by the perimeter of the base.

VII.

1875—7—16+30
1874—10—22
1874—3—1+28
1873—1—22
1872—9—10

4—12 ($120)
1—1—7 ($25)
7—21 ($125)
8—24 (Settlement)

1. Interest on $540 for 4.4 mo. @ 6% = $10.88

2. Amt. due at time of 1st indorsement = $550.88

3. First indorsement = $120

4. Balance due = $430.88

5. Int. on $430.88 for 397 da. = $28.51

6. Int. exceeds indorsement.

7. ∴ Int. on same principal for 7.7 mo. = $16.59.

8. Whole interest due = $28.51 + $16.59 or $45.10

9. Whole amt. due at time of 3rd indorsement = $475.98

10. Sum of 2d and 3rd indorsements = $150.00

11. Balance still due = $325.98

12. Int. on $325.98 for 8.8 mo. = $14.343.

13. ∴ Amt. due at settlement = $340.343

NOTE.—In finding the dates we have counted in months till *whole* months were exhausted; we then counted the exact number of days.

VIII.

(a) An Avoirdupois pound has in it 7000 Troy grains, while a Troy pound has in it but 5760 Troy grains.

There is no difference between Troy and Apothecaries' weight, except in the way they are divided; namely, grains, pennyweights and ounces in the former, while the latter has grains, scruples, drams, etc. The grains, ounces and pounds are exactly the same.

(b) 1 oz. Av. $= \frac{175}{192}$ oz. Troy.

1 " " $= \frac{175}{192}$ oz. Apothecaries.

Hence, to convert Avoirdupois ounces into Troy and Apothecaries' ounces, multiply by $\frac{175}{192}$

## ENGLISH GRAMMAR.

1. What is the essential difference between a complex and a compound sentence?

2. Show by expanding them that the following are compound in thought:

(a) Mr. A and Mr. B are buying real estate.

(b) Mr. A and Mr. B are buying and selling real estate.

3. Show that the following are simple sentences with a compound element:

(a) A black and white horse was sold.
(b) 4 is equal to 2+2.

4. Write original sentences illustrating all substantive uses of the clause. Designate.

5. "If it be possible, as much as lieth in you, live peaceably with all men." Explain the use of the first clause.

6. In which grade do you think the study of formal or technical grammar should begin? Give your reasons.

7. Analyze: Some remedies are worse than the disease.

8. Write a letter of not more than one hundred words in which you decline to accept a position to teach in a grade school.

ANSWERS.

1. The essential difference is that in the first the clauses are dependent on each other while in the second they are independent of each other.

2. They are compound in thought because they are each equal to two simple sentences:
(a) Mr. A is buying real estate and Mr. B is buying real estate.
(b) Mr. A is buying and selling real estate and Mr. B is buying and selling real estate.

3. They are simple sentences because there is in each but one subject and one predicate. The first means that there was only one horse sold, but it was a black and white horse. In the second sentence the meaning is that "4" is equal to the sum of "2+2".

4. The noun clause may be used as:
Subject, as, That the earth is round has been proved.
Object, I know that I shall go to the World's Fair.
Predicate, His answer was "What are you going to do about it."
Appositive, I shall accept on condition that you pay me what I ask.
Object of a preposition, There is a controversy going on about who wrote Shakespeare's plays.
As noun absolute, That alcohol is a poison being admitted, we are enabled to answer several other questions.

5. The first clause modifies "peaceably."

6. We do not think it should be begun until the fifth grade for the reason that it calls for the exercise of powers that are not sufficiently matured before that period.

7. This is a complex sentence. The principal clause is, "some remedies are worse" and the subordinate clause "than the disease is [bad]". "Remedies" is the subject of the principal clause and is modified by the adjective element "some." "Worse" is the predicate modified by the subordinate clause. "Disease" is the subject of the subordinate clause, "is" is the copula, and bad (understood) is the predicate. "Than" is a conjunction which connects the two clauses.

8.

Dear Sir: I am in receipt of yours of the 3rd inst. in which you offer me a position as assistant principal of the high school in your city for the coming year. Allow me to sincerely thank you for the high mark of confidence which you have placed on my work as a teacher in offering me a situation in your most excellent school. I assure you that if circumstances permitted I would be glad to avail myself of your kind offer; but as I have been re-elected to my present position, and have decided to accept, I am compelled to decline the position which you offer.

Again thanking you, I remain

Very sincerely yours.

## PHYSIOLOGY.

(Seven out of ten.)

1. What do you know of the amœba?

2. What is the relation of the cell to the body?

3. Describe the shoulder girdle. Of what use is it?

4. How are the bones of the skeleton joined to each other?

5. How does the blood of the frog differ from that of man?

6. Describe the action of the valves of the veins.

7. What is meant by assimilation?

8. Of what does the respiratory apparatus consist, and how does it perform its work?

9. What is the function of the kidneys?

10. Describe the cerebrum.

ANSWERS.

1. It is a one celled animal consisting of a minute mass of protoplasm with a nucleus and pulsating vacuole; it is found in salt and fresh water. It belongs to the Subkingdom Protozoa.

2. It is the structural unit of the tissues. It is also the physiological unit.

3. It consists of 4 bones, 2 scapulas and 2 clavicles. The scapulas are flat and situated dorsally, the clavicles are long and slender and situated ventrally. It attaches the upper extremities to the trunk.

4. By bands and cords of strong inelastic tissues called ligaments.

5. Its colored corpuscles are 5 times as large and are bi-convex in form.

6. The valves are pouch-shaped and fill with blood when it sets away from the veins and thus prevents its reflux.

7. The process by which the digested products are converted into tissue.

8. Lungs, diaphragm and other respiratory muscles, ribs, plural and trachea.

The thorax is enlarged by the respiratory muscles acting upon the ribs and sternum.

9. To excrete the nitrogenous waste of the system.

10. Two hemispheres joined by a band of fibers, the corpus callosum. It is situated in the upper and anterior of the skull. It is the organ of the intellect.

## GEOGRAPHY.

1. How much of the study of geography should be memory work?

2. Describe the three methods (Mercator's, Bonne's, and the Polyconic) of representing the earth's surface on a map.

3. What influence do the physical features of a country exert upon its political geography?

4. How would the climate and products of the countries affected by it be changed, if the Gulf stream should become a cold body of water?

5. What features of "home geography" should be taught before beginning the study of other countries?

6. What conditions have contributed to make of the English a great sea-faring people?

7. How much of history belongs properly with the study of geography?

8. What features of the country would you make prominent in the study and discussion of Russia?

ANSWERS.

1. Probably not more than the names of places.

2. Mercator's shows the earth's surface on a plane or flat diagram.

Bonne's and the Polyconic on a curved surface.

3. A variety of physical characters produce a difference of peoples as seen among the nations of Europe.

4. It would become cold and comparatively dry, and northwestern Europe would be much like Labrador.

5. Its physical characteristics and its political divisions.

6. Their insular country and situation midway or among the producing nations of the earth.

7. Its discoveries and settlements and a brief outline of its progress.

8. Its inland location, its vast plains, its large rivers, its bordering mountains and seas.

## U. S. HISTORY.

1. What effect upon negro slavery had the passage of the Ordinance of 1787? The Mexican War? The Dred Scott Decision?

2. For what was each of the following persons noted? John Ericsson?

Wm. H. Seward? Roscoe Conkling? J. Fennimore Cooper? Robert Morris?

3. (a) Discuss briefly the principal events of Jackson's administration.

(b) Discuss briefly the character of Jackson.

4. Name the great national parties that have been organized since 1776, and state briefly the distinctive principles of each.

5. State somewhat fully the manner of electing a President.

ANSWERS.

1. The Ordinance of 1787 forever excluded slavery from that part of the country known as the "North West Territory." Its effect, therefore, was to restrict slavery. The Mexican War extended slavery by adding more southern territory to the Union. The Dred Scott decision made slavery a legal institution everywhere.

2. John Ericsson noted as the builder of the "Monitor." Wm. H. Seward was Secretary of State during Lincoln's Administration. Roscoe Conkling noted as an orator and statesman. J. Fennimore Cooper, noted as a novelist. Robert Morris, noted for his liberality toward the revolutionary soldiers in times of great distress.

3. The first thing that attracted the attention of the public in the beginning of Jackson's Administration was the use of the principle of "rotation in office" which has since been followed. Then came the Nullification Act of South Carolina which declared that the tariff law was "null and void," and in which the state declared that she would resist any attempts to collect such duties. The matter was afterwards compromised by the adoption of Clay's Compromise Bill. President Jackson also refused to renew the charter of the Bank of the United States. Jackson's financial policy excited great clamor.

In this administration occurred also the Black Hawk War, in the North West Territory, and the Seminole War in Florida.

4. The first parties organized were the Federalist and Anti-Federalist. The Federalists were in favor of a considerable centralization of power, while the Anti-Federalists believed in a sort of friendly league between the states, each state at the same time retaining all its powers. During Washington's Administration the Anti Federalists assumed the name of Republicans, but the dividing line between the parties was about the same. These parties continued to exist until the close of the war of 1812. The success of that war killed the Federalist party, since it had been violently opposed to the war. Accordingly, at the close of Madison's Administration, the Republican candidate, James Monroe, was almost unanimously elected. Toward the close of Monroe's second term of office, however, the great Republican party became divided. A large part of the party favored a protective tariff and internal improvements. This part assumed the name of Whigs, while the remainder called themselves Democrats.

These parties continued to exist until the time of Pierce's Administration.

During Fillmore's Administration, the question of slavery became so prominent as to over-shadow all others; on this question, a third party known as the Free Soil party came into existence and developed considerable strength. During the next administration the Free Soil party was re-organized under the name of Republican party, and absorbed the old Whig party so that it ceased to exist. There were now before the country the Democratic and Republican parties, one in favor of extending slavery and the other opposed to it. These two parties are before the people to day, but the question that divides them is not the slavery, but the tariff question—exactly the same question that divided the Whig and Democratic parties during Jackson's Administration.

5. In electing the President each party nominates the number of electors to which the state is entitled. The people vote directly for these electors. These chosen electors meet in their respective states and ballot for President and Vice President. These ballots are sent sealed to the president of the Senate, and at the appointed time he opens all these certificates and the votes are counted.

The person who receives the majority of the votes cast for President is declared elected President and the one receiving the majority of the votes cast for Vice President is declared elected Vice-President.

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## THE AUTOCRAT OF THE BREAKFAST TABLE.

(Applicant to answer any six.)

1. What parallel does he draw between homicide and verbicide? What does he mean by the latter?

2. What do you think of the advice to secure recognition for solid qualities before risking the exercise of wit?

3. What lessons does Dr. Holmes draw in reference to the use of one's powers from the law of complementary colors?

4. Give a brief account which Old Age says he receives from people when he first makes their acquaintance.

5. "We carry happiness into our condition, must not expect to find it there." What does the above mean?

6. What do you think Dr. Holmes meant by the statement, "Beware of making your moral staple consist of the negative virtues?"

7. What do you think the author meant by the statement that "Facts always yield the place of honor to thoughts about facts?"

8. What difference would you make between a mistake happening as a clerical error and a mistake that is clearly an habitual vulgarism of speech?

9. State in your own words the substance of some pedagogical lesson you have obtained from the reading of the Autocrat of the Breakfast Table.

10. Make a quotation and justify your selection by statement of its value.

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## SCIENCE OF EDUCATION.

(Applicant to discuss three out of four.)

1. Show in a course of reasoning whether more time should be devoted to teaching oral reading or the silent mastery of the printed matter in the common schools.

2. It is said that the individual must develop through the same stages as does the race in its progress. What application can be made of this fact, if true, in school education?

3. Show by discussion that punishment for offenses should usually be chiefly corrective and given for the sake of saving the offender. In what cases should punishment serve as a warning to the innocent.

4. Illustrate how the study of United States history can be made something more than the memorizing of the story of our country's progress.

ANSWERS.

1. "The silent mastery of the printed matter" is the important thing to teach. "Oral reading" is not nearly so important unless one is to be a professional elocutionist, and even then the matter cannot be well rendered unless it is thoroughly mastered. If we ask the question "What is the use of books?" we would have to answer that their purpose is to convey knowledge from the writer to the reader. It is not assumed that a third person will be necessary to assist the book in conveying that knowledge.

2. The application is that such work should be given the pupil as is adapted to each stage.

3. When pupils have acquired the proper habits they will not offend. Action is largely a matter of habit. Therefore punishment should be of a kind that shall lead the pupil into the correct habits. It should be made a warning only when willfully and notoriously wicked.

4. Many moral lessons should be learned from the study of history. The life of Columbus may be made a valu able study by dwelling on the character of the man. We may get lessons from the study of the discoveries, of the manners and customs of the people, the causes and results of wars &c.

# *PUBLISHER'S PAGE.*


## THE STUDENT.

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Friday Afternoon Exercises will be omitted from the July and August numbers of THE STUDENT.

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The Lady of the Lake is the literature that will be used for teachers' examination in Indiana for the months of August, September and October.

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The result of the great premium offer can not be announced until the next issue.

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## NOTICE.

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